

rompt (=>).

=> file pnttext
COST IN U.S. DOLLARS
FULL ESTIMATED COST

SINCE FILE ENTRY	TOTAL SESSION
0.21	0.21

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FILE 'USPAT2' ENTERED AT 10:43:55 ON 10 JUN 2005
CA INDEXING COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

=> s electroluminescent copolymer# and multi-functional monomer#
L1 3 ELECTROLUMINESCENT COPOLYMER# AND MULTI-FUNCTIONAL MONOMER#

=> s electroluminescent copolymer# and multi-functional monomer?
L2 3 ELECTROLUMINESCENT COPOLYMER# AND MULTI-FUNCTIONAL MONOMER?

=> s electroluminescent and copolymer# and multi-functional monomer?
L3 17 ELECTROLUMINESCENT AND COPOLYMER# AND MULTI-FUNCTIONAL MONOMER?

=> s 13 and branch?
L4 14 L3 AND BRANCH?

=> s 14 and first and second
L5 11 L4 AND FIRST AND SECOND

=> d 15 1-11

L5 ANSWER 1 OF 11 EPFULL COPYRIGHT 2005 EPO/FIZ KA on STN

AN 1998:20177 EPFULL
DUPD 19981230 DUPW 199853
TIEN FLUORESCENT HOST-GUEST-SYSTEM.
TIFR SYSTEME HOTE-CLIENT FLUORESCENT.
IN DEVLIN, Brian, Gerrard, 2-5-202, Takamatsu-cho, Takarazuka-shi, Hyogo
665, JP;
OTANI, Junji, 5-1-1201, Shinoharadai Nada-ku, Kobe-shi, Hyogo 657, JP;
KUNIMOTO, Kazuhiko, 4-9-3, Akutagawa-cho, Takatsuki-shi, Osaka 569-11,
JP;
IQBAL, Abul, La Dey 202, CH-1732 Arconciel, CH;
ELDIN, Sameer, Hosam, La Grande Fin, CH-1784 Courtepin, CH
PA Ciba Specialty Chemicals Holding Inc., Klybeckstrasse 141, 4057 Basel,
CH
PAN 2199760
LAF English
LA English
LAP English
TL English; French

DT Patent
PIT WO1 International application published with search report
PI WO 9833866 A1 19980806
DS AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
AI EP 1998-904111 A 19980121
WO 1998-EP318 A 19980121
PRAI EP 1998-904111 A 19980121 *
WO 1998-EP318 A 19980121 *
IC.VER 6
ICM C09K011-06
ICS C07D487-04; C09B057-12

AN 1998:20177 EPFULL
DUPD 20010613 DUPW 200124
TIEN FLUORESCENT HOST-GUEST-SYSTEM.
TIFR SYSTEME HOTE-CLIENT FLUORESCENT.
TIDE FLUOREZENTES GUEST-HOST-SYSTEM.
IN DEVLIN, Brian, Gerrard, Jurastrasse 40, 4053 Basel, CH;
OTANI, Junji, 5-1-1201, Shinoharadai Nada-ku, Kobe-shi, Hyogo 657, JP;
KUNIMOTO, Kazuhiko, 4-9-3, Akutagawa-cho, Takatsuki-shi, Osaka 569-11,
JP;
IQBAL, Abul, La Dey 202, CH-1732 Arconciel, CH;
ELDIN, Sameer, Hosam, La Grande Fin, CH-1784 Courtepin, CH
PA Ciba Specialty Chemicals Holding Inc., Klybeckstrasse 141, 4057 Basel,
CH
PAN 2199760
LAF English
LA English
LAP English
TL German; English; French
DT Patent
PIT EPA1 Application published with search report
PI EP 968253 A1 20000105
WO 9833866 19980806
DS AT BE CH DE DK ES FI FR GB GR IE IT LI NL PT SE
AI EP 1998-904111 A 19980121
WO 1998-EP318 A 19980121
PRAI EP 1997-810049 A 19970203
EP 1997-810050 A 19970203
EP 1997-810051 A 19970203
EP 1997-810054 A 19970204
EP 1997-810055 A 19970204
IC.VER 7
ICM C09K011-06
ICS C07D487-04; C09B057-12

AN 1998:20177 EPFULL
DUPD 20031112 DUPW 200346
TIEN FLUORESCENT HOST-GUEST-SYSTEM.
TIFR SYSTEME HOTE-CLIENT FLUORESCENT.
TIDE FLUOREZENTES GUEST-HOST-SYSTEM.
IN DEVLIN, Brian, Gerrard, Jurastrasse 40, 4053 Basel, CH;
OTANI, Junji, 5-1-1201, Shinoharadai Nada-ku, Kobe-shi, Hyogo 657, JP;
KUNIMOTO, Kazuhiko, 4-9-3, Akutagawa-cho, Takatsuki-shi, Osaka 569-11,
JP;
IQBAL, Abul, La Dey 202, CH-1732 Arconciel, CH;
ELDIN, Sameer, Hosam, La Grande Fin, CH-1784 Courtepin, CH
PA Ciba Specialty Chemicals Holding Inc., Klybeckstrasse 141, 4057 Basel,
CH
PAN 2199760
LAF English
LA English
LAP English
TL German; English; French
DT Patent
PIT EPB1 Granted patent
PI EP 968253 B1 20020213
WO 9833866 19980806

DS AT BE CH DE DK ES FI FR GB GR IE IT LI NL PT SE
 AI EP 1998-904111 A 19980121
 WO 1998-EP318 A 19980121
 PRAI EP 1997-810049 A 19970203
 EP 1997-810050 A 19970203
 EP 1997-810051 A 19970203
 EP 1997-810054 A 19970204
 EP 1997-810055 A 19970204
 REP EP 456609 A
 WO 9415441 A
 GB 2292947 A
 IC.VER 7
 ICM C09K011-06
 ICS C07D487-04; C09B057-12

 LS ANSWER 2 OF 11 PCTFULL COPYRIGHT 2005 Univentio on STN
 AN 2004072171 PCTFULL ED 20040901 EW 200435
 TIEN ELECTROLUMINESCENT COPOLYMERS WITH MULTI-
 FUNCTIONAL MONOMERS AND METHODS FOR USE THEREOF
 TIFR COPOLYMERES ELECTROLUMINESCENTS COMPRENANT DES MONOMERES MULTIFONCTIONS
 ET LEURS PROCEDES D'UTILISATION
 IN UCKERT, Frank, P., 2106 Mount Calvary Road, Santa Barbara, CA 93105, US
 [DE, US];
 SIMMONS, Howard, E., III, 9 East Mozart Street, Wilmington, DE 19807, US
 [US, US]
 PA E.I. DU PONT DE NEMOURS AND COMPANY, 1007 Market Street, Wilmington, DE
 19898, US [US, US], for all designates States except US;
 UCKERT, Frank, P., 2106 Mount Calvary Road, Santa Barbara, CA 93105, US
 [DE, US], for US only;
 SIMMONS, Howard, E., III, 9 East Mozart Street, Wilmington, DE 19807, US
 [US, US], for US only
 AG CAPRIA, Mary, Ann, E. I. Du Pont De Nemours And Company, Legal Patent
 Records Center, 4417 Lancaster Pike, Wilmington, DE 19805, US
 LAF English
 LA English
 DT Patent
 PI WO 2004072171 A2 20040826
 DS W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR
 CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID
 IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG
 MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE
 SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM
 ZW
 W-U: AE AL AM AT AZ BG BR BY BZ CN CO CR CZ DE DK EC EE ES FI
 GE HU JP KE KG KP KR KZ LS MD MX MZ NI PH PL PT RU SK SL
 TJ TR TT UA UG UZ YU
 RW (ARIPO): BW GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
 RW (EAPO): AM AZ BY KG KZ MD RU TJ TM
 RW (EPO): AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC
 NL PT RO SE SI SK TR
 RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
 RW-U (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
 AI WO 2004-US4166 A 20040210
 PRAI US 2003-60/446,900 20030212
 ICM C08L

 LS ANSWER 3 OF 11 PCTFULL COPYRIGHT 2005 Univentio on STN
 AN 2002051892 PCTFULL ED 20020716 EW 200227
 TIEN HIGH REFRACTIVE INDEX MICROREPLICATION RESIN
 TIFR RESINE DE MICRO-REPLICATION A INDICE DE REFRACTION ELEVE
 IN OLSON, David, B., P.O. Box 33427, Saint Paul, MN 55133-3427, US;
 POKORNY, Richard, J., P.O. Box 33427, Saint Paul, MN 55133-3427, US;
 FONG, Bettie, C., P.O. Box 33427, Saint Paul, MN 55133-3427, US
 PA 3M INNOVATIVE PROPERTIES COMPANY, 3M Center, P.O. Box 33427, Saint Paul,
 MN 55133-3427, US [US, US]
 AG FAGAN, Lisa, M., Office of Intellectual Property Counsel, P.O. Box
 33427, Saint Paul, MN 55133-3427, US
 LAF English

LA English
DT Patent
PI WO 2002051892 A1 20020704
DS W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU
CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS
JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW
MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ
UA UG UZ VN YU ZA ZW
W-U: AT CZ DE DK EE FI SK
RW (ARIPO): GH GM KE LS MW MZ SD SL SZ TZ UG ZW
RW (EAPO): AM AZ BY KG KZ MD RU TJ TM
RW (EPO): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
RW (OAPI): BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
AI WO 2001-US14040 A 20010501
PRAI US 2000-09/746,613 20001221
ICM C08F228-02
ICS C08F220-30; G02B001-04

L5 ANSWER 4 OF 11 PCTFULL COPYRIGHT 2005 Univentio on STN
AN 1998033866 PCTFULL ED 20020514
TIEN FLUORESCENT HOST-GUEST-SYSTEM
TIFR SYSTEME HOTE-CLIENT FLUORESCENT
IN DEVLIN, Brian, Gerrard;
OTANI, Junji;
KUNIMOTO, Kazuhiko;
IQBAL, Abul;
ELDIN, Sameer, Hosam
PA CIBA SPECIALTY CHEMICALS HOLDING INC.
LA German
DT Patent
PI WO 9833866 A1 19980806
DS W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES
FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR
LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG
SI SK SL TJ TM TR TT UA UG UZ VN YU ZW GH GM KE LS MW SD
SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI
FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML
MR NE SN TD TG
AI WO 1998-EP318 A 19980121
PRAI DE 1997- 19970203
DE 1997- 19970203
DE 1997- 19970203
DE 1997- 19970204
DE 1997- 19970204
ICM C09K011-06
ICS C07D; C09B057:12

L5 ANSWER 5 OF 11 PCTFULL COPYRIGHT 2005 Univentio on STN
AN 1998033865 PCTFULL ED 20020514
TIEN FLUORESCENT CHROMOPHORE, COVALENTLY LINKED TO AN ORGANIC SUPPORT
MATERIAL
TIFR CHROMOPHORE FLUORESCENT, LIE PAR COVALENCE A UN MATERIAU DE SUPPORT
ORGANIQUE
IN DEVLIN, Brian, Gerrard;
OTANI, Junji;
KUNIMOTO, Kazuhiko
PA CIBA SPECIALTY CHEMICALS HOLDING, INC.
LA German
DT Patent
PI WO 9833865 A1 19980806
DS W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES
FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR
LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG
SI SK SL TJ TM TR TT UA UG UZ VN YU ZW GH GM KE LS MW SD
SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI
FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML
MR NE SN TD TG
AI WO 1998-EP317 A 19980121

PRAI DE 1997- 19970203
DE 1997- 19970203
DE 1997- 19970203
DE 1997- 19970204
DE 1997- 19970204
ICM C09K011-06
ICS C07D; C09B057:12

L5 ANSWER 6 OF 11 USPATFULL on STN
AN 2004:262055 USPATFULL
TI **Electroluminescent copolymers with multi-functional monomers** and methods for use thereof
IN Uckert, Frank P., Santa Barbara, CA, UNITED STATES
Simmons, Howard E., III, Wilmington, DE, UNITED STATES
PI US 2004204557 A1 20041014
AI US 2004-771045 A1 20040203 (10)
PRAI US 2003-446900P 20030212 (60)
DT Utility
FS APPLICATION
LN.CNT 535
INCL INCLM: 528/004.000
INCLS: 528/397.000; 528/422.000
NCL NCLM: 528/004.000
NCLS: 528/397.000; 528/422.000
IC [7]
ICM: C08G061-00
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 7 OF 11 USPATFULL on STN
AN 2003:146946 USPATFULL
TI Optical product having a high refractive index microreplication resin
IN Olson, David B., Marine on St. Croix, MN, UNITED STATES
Pokorny, Richard J., Maplewood, MN, UNITED STATES
Fong, Bettie C., Woodbury, MN, UNITED STATES
PA 3M Innovative Properties Company (U.S. corporation)
PI US 2003100693 A1 20030529
AI US 2002-292275 A1 20021112 (10)
RLI Division of Ser. No. US 2000-746613, filed on 21 Dec 2000, PENDING
DT Utility
FS APPLICATION
LN.CNT 583
INCL INCLM: 526/286.000
INCLS: 526/328.500; 526/292.300; 526/292.500; 526/305.000; 526/317.100;
526/319.000; 526/321.000; 623/006.110
NCL NCLM: 526/286.000
NCLS: 526/328.500; 526/292.300; 526/292.500; 526/305.000; 526/317.100;
526/319.000; 526/321.000; 623/006.110
IC [7]
ICM: C08F128-02
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 8 OF 11 USPATFULL on STN
AN 2002:228426 USPATFULL
TI High refractive index microreplication resin
IN Olson, David B., Marine on St. Croix, MN, UNITED STATES
Pokorny, Richard J., Maplewood, MN, UNITED STATES
Fong, Bettie C., Woodbury, MN, UNITED STATES
PA 3M Innovative Properties Company (U.S. corporation)
PI US 2002123589 A1 20020905
US 6541591 B2 20030401
AI US 2000-746613 A1 20001221 (9)
DT Utility
FS APPLICATION
LN.CNT 617
INCL INCLM: 526/286.000
NCL NCLM: 526/284.000
NCLS: 522/035.000; 526/286.000
IC [7]

ICM: C08F128-02

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 9 OF 11 USPATFULL on STN
AN 2000:153443 USPATFULL
TI Fluorescent host-guest-system
IN Devlin, Brian Gerrard, Takarazuka, Japan
Otani, Junji, Kobe, Japan
Kunimoto, Kazuhiko, Takatsuki, Japan
Iqbäl, Abul, Arconciel, Switzerland
Eldin, Sameer Hosam, Courtepin, Switzerland
PA Ciba Specialty Chemicals Corporation, Tarrytown, NY, United States (U.S. corporation)
PI US 6146809 20001114
AI US 1998-17868 19980203 (9)
PRAI EP 1997-810049 19970203
EP 1997-810050 19970203
EP 1997-810051 19970203
EP 1997-810054 19970204
EP 1997-810055 19970204
DT Utility
FS Granted
LN.CNT 2340
INCL INCLM: 430/270.100
INCLS: 430/286.100; 430/271.100; 430/017.000; 430/306.000; 106/494.000;
252/301.160; 548/301.700
NCL NCLM: 430/270.100
NCLS: 106/494.000; 252/301.160; 430/017.000; 430/271.100; 430/286.100;
430/306.000; 548/301.700
IC [7]
ICM: G03C001-73
ICS: G03C001-76; C08K005-3445; C09K011-06; C07D235-04
EXF 106/494; 430/270.1; 430/17; 430/271.1; 430/306; 430/286.1; 252/301.16;
548/301.7
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 10 OF 11 USPATFULL on STN
AN 2000:105631 USPATFULL
TI Fluorescent chromophore, covalently linked to an organic support material
IN Devlin, Brian Gerrard, Takarazuka, Japan
Otani, Junji, Kobe, Japan
Kunimoto, Kazuhiko, Takatsuki, Japan
PA Ciba Specialty Chemicals Corporation, Tarrytown, NY, United States (U.S. corporation)
PI US 6103446 20000815
AI US 1998-17869 19980203 (9)
PRAI EP 1997-810049 19970203
EP 1997-810050 19970203
EP 1997-810051 19970203
EP 1997-810054 19970204
EP 1997-810055 19970204
DT Utility
FS Granted
LN.CNT 1927
INCL INCLM: 430/270.100
INCLS: 430/288.100; 430/286.100; 430/281.100
NCL NCLM: 430/270.100
NCLS: 430/281.100; 430/286.100; 430/288.100
IC [7]
ICM: G03C001-72
ICS: G03C001-73
EXF 430/270.1; 430/933; 430/281.1; 430/288.1; 430/286.1; 430/139; 526/259
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 11 OF 11 USPAT2 on STN
AN 2002:228426 USPAT2
TI High refractive index microreplication resin from

IN naphthoxyalkylmethacrylates or naphthoxyacrylates polymers
Olson, David B., Marine on St. Croix, MN, United States
Pokorny, Richard J., Maplewood, MN, United States
Fong, Bettie C., Woodbury, MN, United States
PA 3M Innovative Properties Company, St. Paul, MN, United States (U.S.
corporation)
PI US 6541591 B2 20030401
AI US 2000-746613 20001221 (9)
DT Utility
FS GRANTED
LN.CNT 581
INCL INCLM: 526/284.000
INCLS: 522/035.000; 526/286.000
NCL NCLM: 526/284.000
NCLS: 522/035.000; 526/286.000
IC [7]
ICM: C08F128-00
EXF 526/284; 526/286; 522/35; 522/38
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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STIC Search Report

EIC 1700

STIC Database Tracking Number

TO: Duc Truong
Location: REM 10D71
Art Unit : 1711
June 10, 2005

Case Serial Number: 10/771045

From: Usha Shrestha
Location: EIC 1700
REMSEN 4B28
Phone: 571/272-3519
usha.shrestha@uspto.gov

Search Notes



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact **the EIC searcher or contact:**

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

➤ I am an examiner in Workgroup: Example: 1713

➤ Relevant prior art found, search results used as follows:

- 102 rejection
- 103 rejection
- Cited as being of interest.
- Helped examiner better understand the invention.
- Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- Foreign Patent(s)
- Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art *not found*:

- Results verified the lack of relevant prior art (helped determine patentability).
- Results were not useful in determining patentability or understanding the invention.

Comments:

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: TRUNG, DUC Examiner #: 69332 Date: 4/25/05
 Art Unit: 171 Phone Number 302-7281 Serial Number: 67711045
 Mail Box and Bldg/Room Location: 6071 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

SCIENTIFIC REFERENCE BF
Sci & Tech Inf. Ctr

Inventors (please provide full names): _____

MAY 25 RECD

Earliest Priority Filing Date: _____

Pat. & T.M. Office

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Formula from Remarks is that a first units can be read from claim
blocks

STAFF USE ONLY

Searcher: 171

Type of Search

Vendors and cost where applicable

Searcher Phone #: _____

NA Sequence (#) _____

STN 438-19

Searcher Location: _____

AA Sequence (#) _____

Dialog _____

Date Searcher Picked Up: 6/10/05

Structure (#) 2

Questel/Orbit _____

Date Completed: 6/10/05

Bibliographic _____

Dr. Link _____

Searcher Prep & Review Time: 60

Litigation _____

Lexis/Nexis _____

Clerical Prep Time: 30

Fulltext _____

Sequence Systems _____

Online Time: 130

Patent Family _____

WWW/Internet _____

Other _____

Other (specify) _____

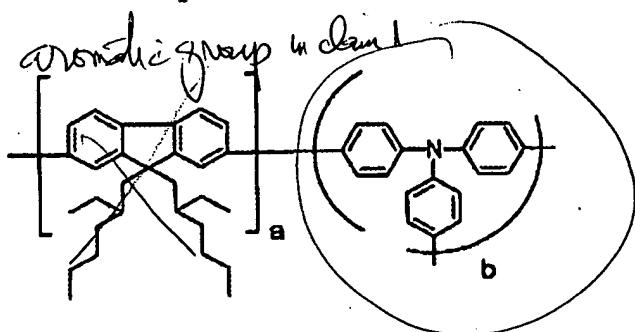
Application No.: 10/771045
Docket No.: UC0209USNA

Page 3

Remarks

Applicants' amendment to the specification corrects an obvious typographical error. That is, one of ordinary skill would know that 10.0 mg of tris(4-bromophenyl)amine is 0.02 mmol, not 2.0 mmol. No new matter is introduced.

With respect to the election of the species for examination, Polymer 1 is elected



and Claims 1 – 9 and 12 all read on this elected specie.

Respectfully submitted,


MARY ANN CAPRIA
ATTORNEY FOR APPLICANTS
Registration No.: 32,659
Telephone: (302) 992-3749
Facsimile: (302) 892-7949

Dated: May 6, 2005

CLAIMS

What is claimed is:

1. A polymeric composition comprising:
 - a first plurality of first monomeric units comprising an aromatic group with at least one substituent selected from alkyl, heteroalkyl, alkenyl, heteroalkenyl, alkynyl, heteroalkynyl, aryl, arylalkyl, heteroaryl, heteroarylalkyl, and amino, and
 - a second plurality of second multi-functional monomeric units, wherein each multi-functional monomeric unit is capable of forming a branching point in the polymeric composition.
- 5 2. The polymeric composition of Claim 1, wherein the aromatic group is selected from fluorene, spirofluorene, phenyl, biphenyl, bridged biphenyl, naphthalene, and anthracene.
- 10 3. The polymeric composition of Claim 2, wherein the aromatic group is a dialkylfluorene.
- 15 4. The polymeric composition of Claim 1, wherein the second monomeric unit is selected from a second aromatic group having more than two points of attachment and a heteroaromatic group having more than two points of attachment.
- 20 5. The polymeric composition of Claim 4, wherein the second aromatic group is selected from groups having a benzene ring, groups having more than one benzene ring, and triaryl amines.
6. The polymeric composition of Claim 5 wherein the second monomeric unit is selected from:



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 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
www.uspto.gov



Bib Data Sheet

CONFIRMATION NO. 1529

SERIAL NUMBER 10/771,045	FILING DATE 02/03/2004 RULE	CLASS 528	GROUP ART UNIT 1711	ATTORNEY DOCKET NO. UC0209USNA
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APPLICANTS

Frank P. Uckert, Santa Barbara, CA;

Howard E. Simmons III, Wilmington, DE;

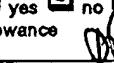
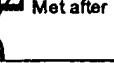
** CONTINUING DATA *****

This appn claims benefit of 60/446,900 02/12/2003

** FOREIGN APPLICATIONS *****

IF REQUIRED, FOREIGN FILING LICENSE GRANTED

** 05/03/2004

Foreign Priority claimed	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
35 USC 119 (a-d) conditions met	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> Met after Allowance	CA	1	12	4
Verified and Acknowledged	Examiner's Signature  Initials 				

ADDRESS

23906
 E I DU PONT DE NEMOURS AND COMPANY
 LEGAL PATENT RECORDS CENTER
 BARLEY MILL PLAZA 25/1128
 4417 LANCASTER PIKE
 WILMINGTON, DE
 19805

TITLE

Electroluminescent copolymers with multi-functional monomers and methods for use thereof

FILING FEE	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT	<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time)
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=> fil reg

FILE 'REGISTRY' ENTERED AT 10:59:09 ON 10 JUN 2005

=> d his ful

FILE 'HCAPLUS' ENTERED AT 09:02:02 ON 10 JUN 2005

L1 1 SEA ABB=ON PLU=ON US20040204557/PN
 D SCAN
 SEL RN

FILE 'REGISTRY' ENTERED AT 09:02:28 ON 10 JUN 2005

L2 5 SEA ABB=ON PLU=ON (126213-51-2/BI OR 50926-11-9/BI
 OR 7429-90-5/BI OR 743442-47-9/BI OR 7440-39-3/BI)
 D SCAN

FILE 'LREGISTRY' ENTERED AT 09:09:13 ON 10 JUN 2005

L3 STR
 L4 STR

FILE 'REGISTRY' ENTERED AT 09:18:35 ON 10 JUN 2005

L5 STR L3
 L6 SCR 2043
 L7 50 SEA SSS SAM L4 AND L5 AND L6
 L8 4876 SEA SSS FUL L4 AND L5 AND L6
 SAV L8 DUC045/A

FILE 'HCAPLUS' ENTERED AT 10:08:05 ON 10 JUN 2005

L9 1846 SEA ABB=ON PLU=ON L8
 L10 892 SEA ABB=ON PLU=ON L9 AND (?LUMINES? OR LIGHT? OR
 ?EMIT? OR LED? OR OLED? OR LUMIN? OR FLUORES?)
 L11 584 SEA ABB=ON PLU=ON L9(L) (?LUMINES? OR LIGHT? OR
 ?EMIT? OR LED? OR OLED? OR LUMIN? OR FLUORES?)
 L12 241 SEA ABB=ON PLU=ON L11 AND PLASTIC?/SC, SX
 L13 261 SEA ABB=ON PLU=ON L11(L) PREP/RL
 L14 37 SEA ABB=ON PLU=ON L13 AND PLASTIC?/SC
 L15 1 SEA ABB=ON PLU=ON L14 AND L1
 L16 58 SEA ABB=ON PLU=ON L11 AND PLASTIC?/SC
 L17 41 SEA ABB=ON PLU=ON L16 AND PREP/RL
 D FHITSTR
 D FHITSTR 2-3
 L18 41 SEA ABB=ON PLU=ON L14 OR L17

FILE 'REGISTRY' ENTERED AT 10:59:09 ON 10 JUN 2005

FILE HCAPLUS

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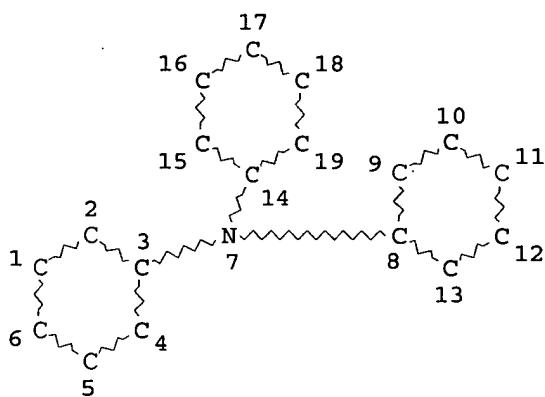
FILE LREGISTRY

LREGISTRY IS A STATIC LEARNING FILE

=> d que 19

L4

STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 19

STEREO ATTRIBUTES: NONE

L5 STR

G1~Cb
1 2

VAR G1=AK/CY/N

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM
GGCAT IS UNS AT 2
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 2

STEREO ATTRIBUTES: NONE

L6 SCR 2043

L8 4876 SEA FILE=REGISTRY SSS FUL L4 AND L5 AND L6

L9 1846 SEA FILE=HCAPLUS ABB=ON PLU=ON L8

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 10:59:26 ON 10 JUN 2005

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PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

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=> d 118 1-41 ibib abs hitstr hitind

L18 ANSWER 1 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:409587 HCAPLUS

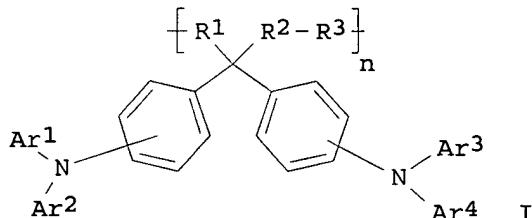
DOCUMENT NUMBER: 142:448093

TITLE: Charge-transporting compounds for varnishes,

INVENTOR(S): Yamada, Tomohisa; Yoshimoto, Takuji; Ono, Go
 PATENT ASSIGNEE(S): Nissan Chemical Industries, Ltd., Japan
 SOURCE: PCT Int. Appl., 35 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	-----	-----	-----	-----
WO 2005042621	A1	20050512	WO 2004-JP16094	2004 1029
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRIORITY APPLN. INFO.:			JP 2003-369864	A 2003 1030

GI



AB Disclosed is a charge-transporting compds. I composed of a polymer having a polymer main chain wherein fluorene derivs. are connected at the 9-position which fluorine derivs. are resp. substituted by an amino group having an aromatic ring or a heterocyclic ring (Ar_1 , Ar_2 , Ar_3 , Ar_4 = (un)substituted aromatic or heterocyclic ring; R_1 , R_2 = (substituted)divalent organic group; R_3 = (substituted) organic group having terminal oxygen or nitrogen; n = number). Thus, 14.5 mmol 2,7-dibromofluorene and 29 mmol diphenylamine were reacted at 100° for 24 h, 2 mmol of the resulting 2,7-bis(diphenylamino)fluorene was reacted with 4 mmol α -chloro-4-methoxytoluene at 100° for 24 h, the resulting compound was reacted with boron tribromide to give

2,7-bis(diphenylamino)-9,9-bis(4-hydroxybenzyl)-fluorene, 1.4 mmol of which was polymerized with 1.4 mmol 4-fluorophenylsulfone at 130° for 24 h to give a copolymer with number average mol. weight 23,000, which was coated onto an ITO-glass, a luminescent layer, electron injecting layer, and cathode were formed thereon to give an organic electroluminescent device with luminance starting voltage 6.5 V, and voltage 11 V under 100 cd/m² and 12 under 500 cd/m².

IT 851379-80-1P 851379-81-2P

(preparation of charge-transporting compds. for varnishes, thin films, and organic **electroluminescent** devices with good long life, high **luminance**, and low voltage workability.)

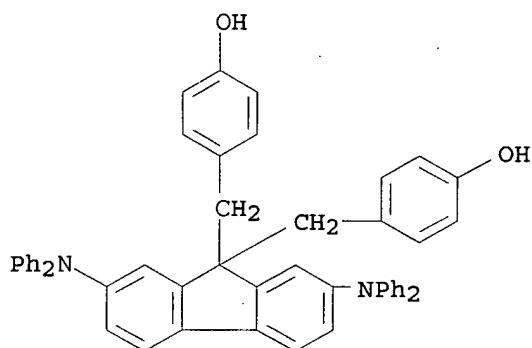
RN 851379-80-1 HCAPLUS

CN Phenol, 4,4'-(2,7-bis(diphenylamino)-9H-fluoren-9-ylidene)bis(methylene)bis-, polymer with 1,1'-sulfonylbis[4-fluorobenzene] (9CI) (CA INDEX NAME)

CM 1

CRN 851379-79-8

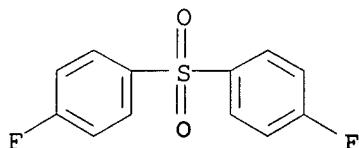
CMF C51 H40 N2 O2



CM 2

CRN 383-29-9

CMF C12 H8 F2 O2 S



RN 851379-81-2 HCAPLUS

CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylenemethylene[2,7-bis(diphenylamino)-9H-fluoren-9-ylidene]methylene-1,4-phenylene] (9CI) (CA INDEX NAME)

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT
 *

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT
 *

IC ICM C08G085-00
 ICS C08G061-00; C08G075-20; H05B033-22; H05B033-14
 CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 73
 IT 851379-80-1P 851379-81-2P

(preparation of charge-transporting compds. for varnishes, thin films, and organic electroluminescent devices with good long life, high luminance, and low voltage workability.)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 2 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:238706 HCAPLUS

DOCUMENT NUMBER: 142:317534

TITLE: Thiophene-containing compound and thiophene-containing compound polymer with good charge-transporting properties and luminous properties

INVENTOR(S): Ohba, Yoshihiro; Sato, Kazuaki; Seki, Mieko; Agata, Takeshi; Sato, Katsuhiro; Mashimo, Kiyokazu; Yoneyama, Hirohito; Hirose, Hidekazu

PATENT ASSIGNEE(S): Japan

SOURCE: U.S. Pat. Appl. Publ., 41 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2005059730	A1	20050317	US 2004-783674	2004 0220
JP 2005082655	A2	20050331	JP 2003-314140	2003 0905
PRIORITY APPLN. INFO.:			JP 2003-314140	A 2003 0905

AB The present invention relates to a thiophene-containing compound and a thiophene-containing compound polymer useful for organo-electronic devices such as electrophotog. photoreceptors (photosensitive elements), organic electroluminescent elements and organic transistors. Thus, 25.0 g acetoanilide and 64.4 g Me 4-iodophenylpropionate were reacted in the presence of 38.3 g potassium carbonate and 2.3 g copper sulfate pentahydrate at 230° for 20 h, 300 mL ethylene glycol and 15.6 g potassium hydroxide were added therein and heated for 3.5 h to give crystals, which was refluxed in the

presence of 1.5 mL concentrated sulfuric acid, separated, and recrystd. to give a diarylamine, 10.0 g of the resulting diarylamine was mixed with 2-(4-iodophenyl)-thiophene 13.4, potassium carbonate 8.1, and copper sulfate pentahydrate 0.5 g, and 15 mL o-dichlorobenzene and refluxed for 10 h to give a thiophenyl-containing compound with m.p. 77-79°, mobility 2 + 10-6 cm²/Vs, maximum absorption wavelength 344 nm, light emission wavelength 423 nm, and glass transition temperature 6°.

IT 842172-17-2P 842172-18-3P

(preparation of thiophene-containing compds. for thiophene-containing compound

polymers with good charge-transporting properties and luminous properties)

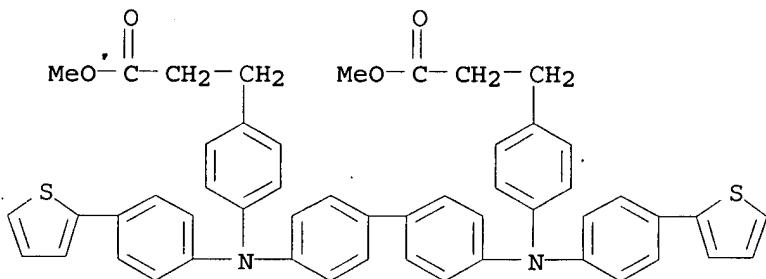
RN 842172-17-2 HCPLUS

CN Benzenepropanoic acid, 4,4'-[[1,1'-biphenyl]-4,4'-diylbis[4,1-phenylene[[4-(2-thienyl)phenyl]imino]]bis-, dimethyl ester, polymer with 1,2-ethanediol (9CI) (CA INDEX NAME)

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CRN 842172-16-1

CMF C52 H44 N2 O4 S2



CM 2

CRN 107-21-1

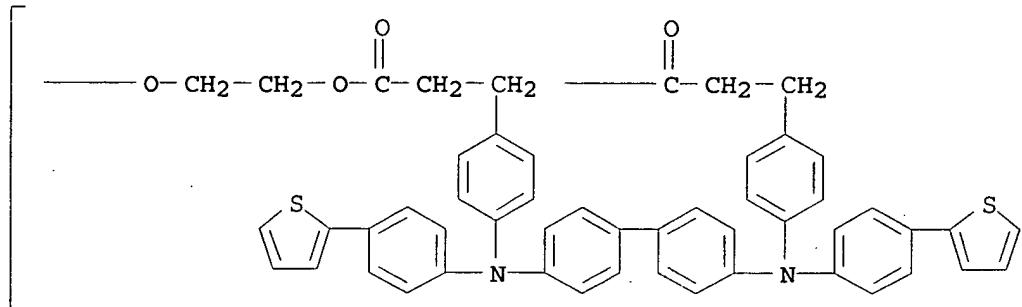
CMF C2 H6 O2

HO—CH₂—CH₂—OH

RN 842172-18-3 HCPLUS

CN Poly[oxy-1,2-ethanediyl(1-oxo-1,3-propanediyl)-1,4-phenylene[[4-(2-thienyl)phenyl]imino][1,1'-biphenyl]-4,4'-diyl[[4-(2-thienyl)phenyl]imino]-1,4-phenylene(3-oxo-1,3-propanediyl)] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

n

IT 842172-14-9P 842172-15-0P 842172-19-4P
 842172-20-7P 847982-68-7P 847982-69-8P
 847982-70-1P 847982-71-2P 847982-72-3P
 (preparation of thiophene-containing compds. for thiophene-containing compound)

polymers with good charge-transporting properties and
luminous properties)

RN 842172-14-9 HCAPLUS

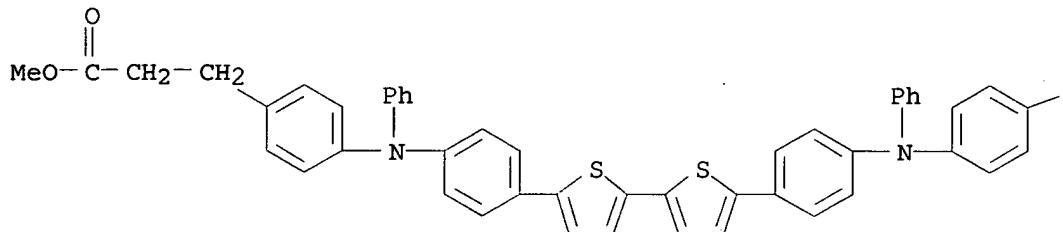
CN Benzenepropanoic acid, 4,4'--[[2,2'-bithiophene]-5,5'-diylbis[4,1-phenylene(phenylimino)]]bis-, dimethyl ester, polymer with 1,2-ethanediol (9CI) (CA INDEX NAME)

CM 1

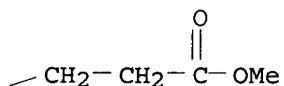
CRN 842172-13-8

CMF C52 H44 N2 O4 S2

PAGE 1-A



PAGE 1-B



CM 2

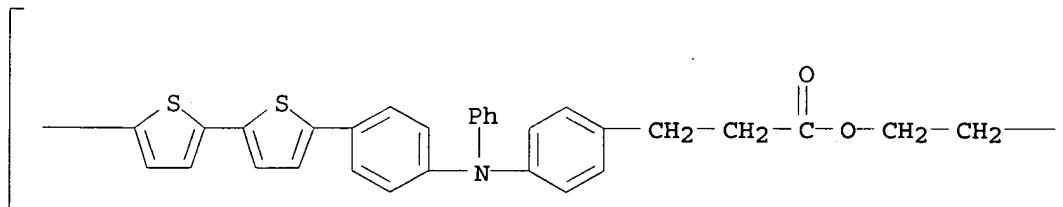
CRN 107-21-1
CMF C2 H6 O2

$$\text{HO}-\text{CH}_2-\text{CH}_2-\text{OH}$$

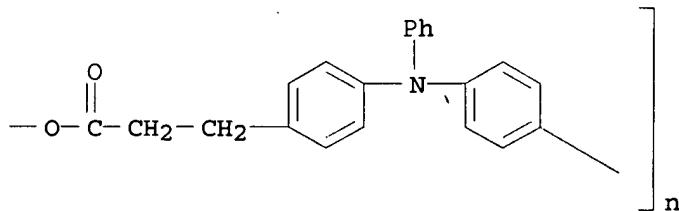
RN 842172-15-0 HCAPLUS

CN Poly[[2,2'-bithiophene]-5,5'-diyl-1,4-phenylene(phenylimino)-1,4-phenylene(3-oxo-1,3-propanediyl)oxy-1,2-ethanediyl]oxy(1-oxo-1,3-propanediyl)-1,4-phenylene(phenylimino)-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



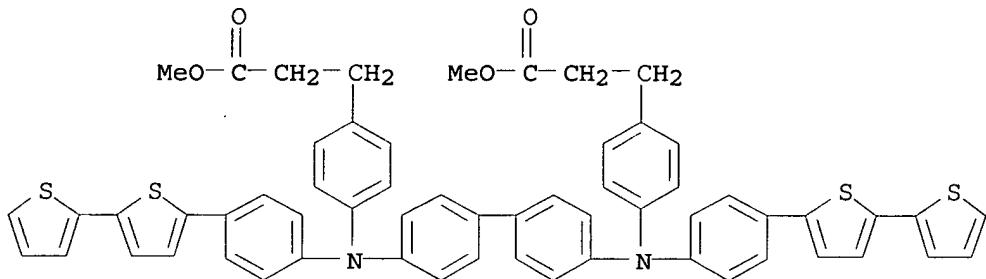
RN 842172-19-4 HCPLUS

CN Benzenepropanoic acid, 4,4'--[[1,1'-biphenyl]-4,4'-diylbis[(4-[2,2'-bithiophen]-5-ylphenyl)imino]]bis-, dimethyl ester, polymer with 1,2-ethanediol (9CI) (CA INDEX NAME)

CM 1

CRN 481687-96-1

CMF C60 H48 N2 O4 S4



CM 2

CRN 107-21-1

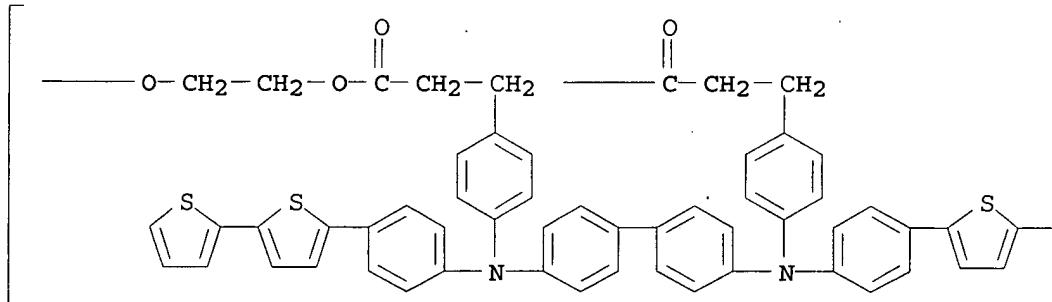
CMF C2 H6 O2

HO—CH₂—CH₂—OH

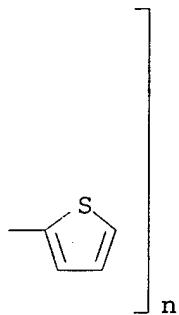
RN 842172-20-7 HCPLUS

CN Poly[oxy-1,2-ethanediyl(1-oxo-1,3-propanediyl)-1,4-phenylene[(4-[2,2'-bithiophen]-5-ylphenyl)imino][1,1'-biphenyl]-4,4'-diyl[(4-[2,2'-bithiophen]-5-ylphenyl)imino]-1,4-phenylene(3-oxo-1,3-propanediyl)] (9CI) (CA INDEX NAME)

PAGE 1-A



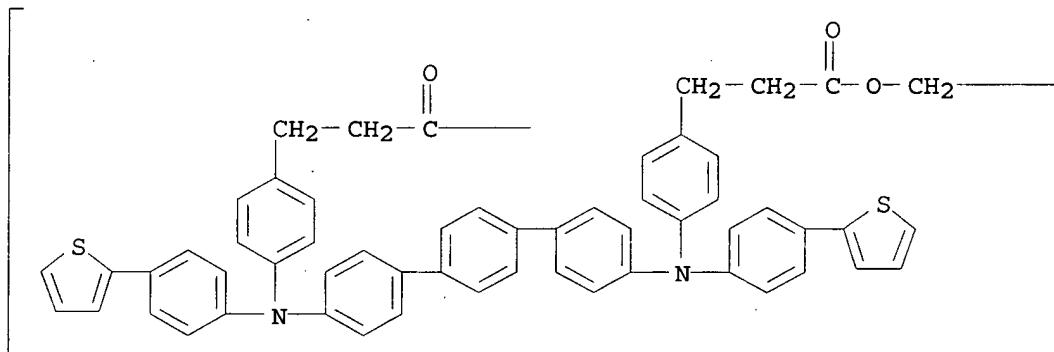
PAGE 1-B



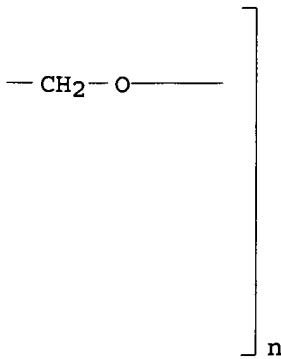
RN 847982-68-7 HCPLUS

CN Poly[oxy-1,2-ethanediyoxy(1-oxo-1,3-propanediyl)-1,4-phenylene[[4-(2-thienyl)phenyl]imino][1,1':4',1'''-terphenyl]-4,4''-diyl[[4-(2-thienyl)phenyl]imino]-1,4-phenylene(3-oxo-1,3-propanediyl]] (9CI)
(CA INDEX NAME)

PAGE 1-A



PAGE 1-B



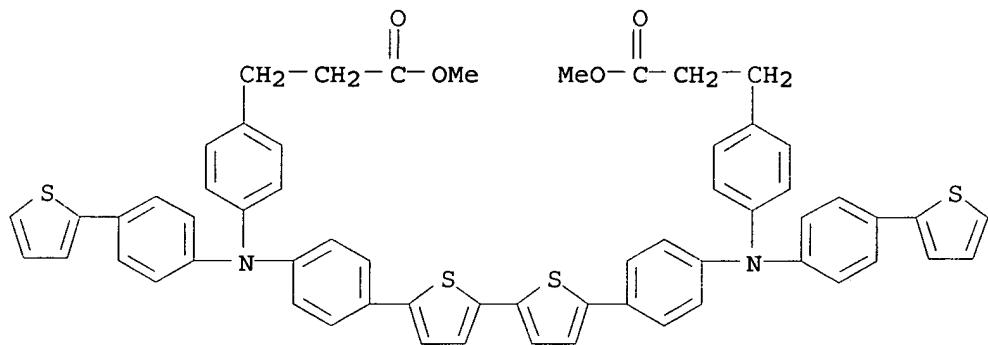
RN 847982-69-8 HCPLUS

CN Benzenepropanoic acid, 4,4'--[[2,2'-bithiophene]-5,5'-diylbis[4,1-

phenylene[[4-(2-thienyl)phenyl]imino]]bis-, dimethyl ester,
polymer with 1,2-ethanediol (9CI) (CA INDEX NAME)

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CRN 847982-64-3
CMF C60 H48 N2 O4 S4



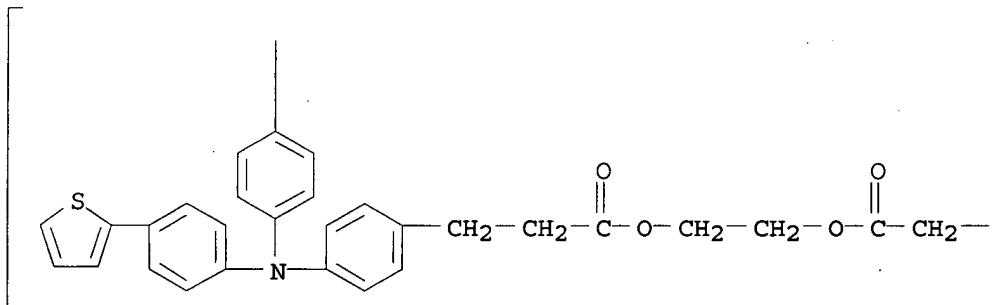
CM 2

CRN 107-21-1
CMF C2 H6 O2

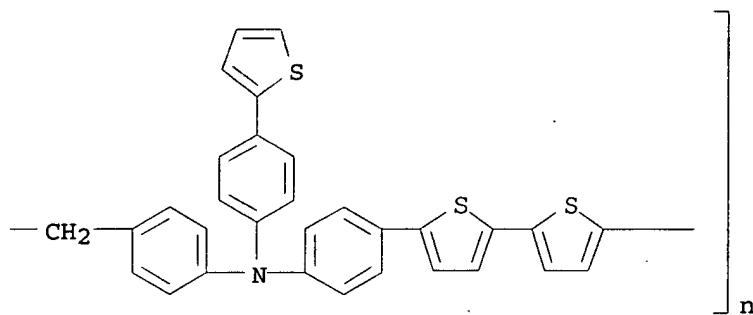
HO-CH₂-CH₂-OH

RN 847982-70-1 HCAPLUS
CN Poly[[2,2'-bithiophene]-5,5'-diyl-1,4-phenylene[[4-(2-thienyl)phenyl]imino]-1,4-phenylene(3-oxo-1,3-propanediyl)oxy-1,2-ethanediyoxy(1-oxo-1,3-propanediyl)-1,4-phenylene[[4-(2-thienyl)phenyl]imino]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



RN 847982-71-2 HCAPLUS

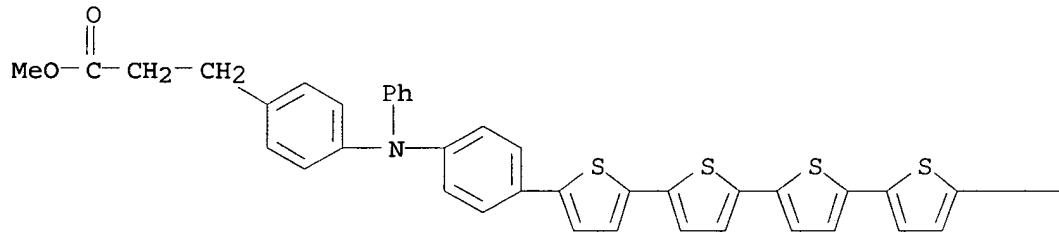
CN Benzenepropanoic acid, 4,4'-[2,2':5',2'':5'',2''''-quaterthiophene]-5,5'''-diylbis[4,1-phenylene(phenylimino)]bis-, dimethyl ester, polymer with 1,2-ethanediol (9CI) (CA INDEX NAME)

CM 1

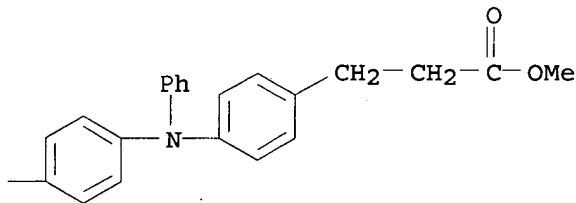
CRN 847982-66-5

CMF C60 H48 N2 O4 S4

PAGE 1-A



PAGE 1-B



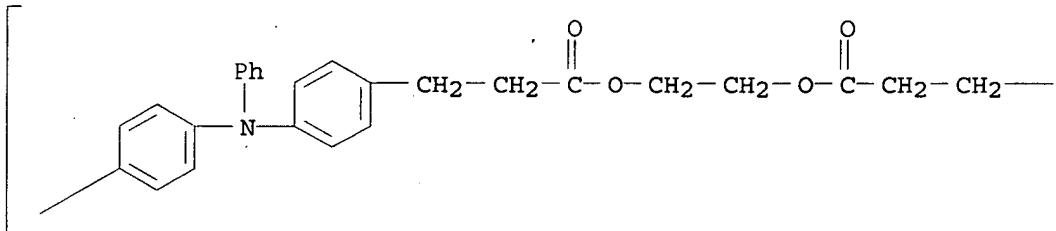
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CRN 107-21-1
CMF C2 H6 O2HO-CH₂-CH₂-OH

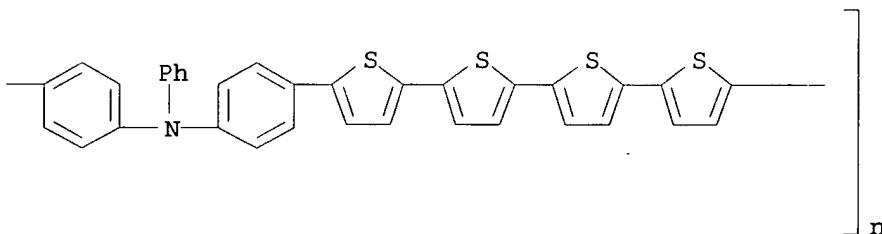
RN 847982-72-3 HCAPLUS

CN Poly[[2,2':5',2'':5'',2''':5''-quaterthiophene]-5,5'''-diyl-1,4-phenylene(phenylimino)-1,4-phenylene(3-oxo-1,3-propanediyl)oxy-1,2-ethanediyoxy(1-oxo-1,3-propanediyl)-1,4-phenylene(phenylimino)-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IC ICM C07D049-02

ICS C07D333-36; A61K031-381

INCL 514444000; 514447000; 549059000; 549063000

CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 35, 74, 76

IT 842172-17-2P 842172-18-3P

(preparation of thiophene-containing compds. for thiophene-containing compound

polymers with good charge-transporting properties and
luminous properties)

IT 842172-14-9P 842172-15-0P 842172-19-4P

842172-20-7P 847982-67-6P 847982-68-7P

847982-69-8P 847982-70-1P 847982-71-2P

847982-72-3P

(preparation of thiophene-containing compds. for thiophene-containing compound

polymers with good charge-transporting properties and
luminous properties)

L18 ANSWER 3 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:799615 HCAPLUS

DOCUMENT NUMBER: 141:296705

TITLE: Polymers, their preparation and uses for
electroluminescence optical devicesINVENTOR(S): Tierney, Brian; Grizzi, Ilaria; Foden, Clare;
Patel, Nalin; Leadbeater, Mark

PATENT ASSIGNEE(S): Cambridge Display Technology Limited, UK

SOURCE: PCT Int. Appl., 23 pp.

CODEN: PIIXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2004083277	A1	20040930	WO 2004-GB1207	2004 0319

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,
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 ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,
 KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
 MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL,
 PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
 TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW,
 AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY,
 CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC,
 NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM,
 GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: GB 2003-6414 A 2003
 0320

AB The polymers comprise a first, optionally substituted, 9,9-di(aryl or heteroaryl)-substituted fluorenediyl repeat unit and XN(Ar)XN(Ar)X (X = arylene, heteroarylene; Ar = aryl, heteroaryl group) unit and optionally <5 mol% (optionally substituted) XN(Ar)X having a single N atom in its backbone. Thus, a blue electroluminescent polymer was prepared by reaction of 9,9-di-n-octylfluorene-2,7-di(ethylenyl boronate) (0.65 equiv), 2,7-dibromo-9,9-diphenylfluorene (0.30 equiv) and N,N'-di(4-bromophenyl)-N,N'-di(4-n-butylphenyl)-1,4-diaminobenzene (0.05 equiv).

IT 625416-36-6P (cathode component; polymers, their preparation and uses for electroluminescence optical devices)

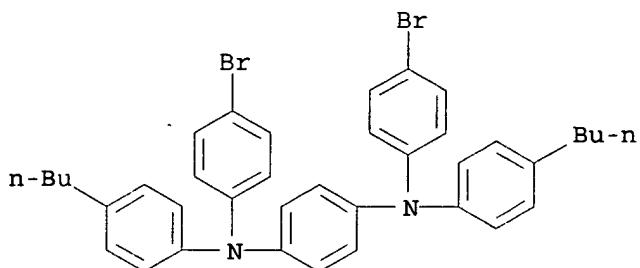
RN 625416-36-6 HCPLUS

CN 1,4-Benzenediamine, N,N'-bis(4-bromophenyl)-N,N'-bis(4-butylphenyl)-, polymer with 2,7-dibromo-9,9-diphenyl-9H-fluorene and 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 372200-89-0

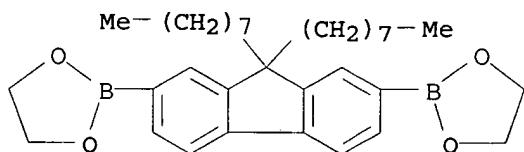
CMF C38 H38 Br2 N2



CM 2

CRN 210347-49-2

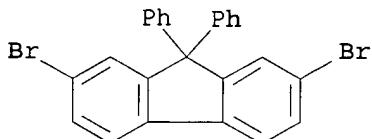
CMF C33 H48 B2 O4



CM 3

CRN 186259-63-2

CMF C25 H16 Br2



IC ICM C08G061-00

ICS C09K011-06; H05B033-14; H01L051-30

CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 38, 74

IT 625416-36-6P

(cathode component; polymers, their preparation and uses for
electroluminescence optical devices)REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L18 ANSWER 4 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:698180 HCAPLUS

DOCUMENT NUMBER: 141:207949

TITLE: Electroluminescent copolymer compositions
containing multifunctional monomers for active
layers in electronic devices and their used

INVENTOR(S): Uckert, Frank P.; Simmons, Howard E., III

PATENT ASSIGNEE(S): E.I. Du Pont De Nemours and Company, USA

SOURCE: PCT Int. Appl., 21 pp.

CODEN: PIIXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004072171	A2	20040826	WO 2004-US4166	
				2004 0210
WO 2004072171	A3	20041202		
W:	AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA, BB, BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN, CO, CO, CR, CR, CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EC, EE, EE, EG, ES, ES, FI, FI, GB, GD, GE, GE, GH, GM, HR, HR, HU, HU, ID, IL, IN, IS, JP, JP, KE, KE, KE, KG, KG, KP, KP, KR, KR, KZ, KZ, KZ, LC, LK, LR, LS, LS, LT, LU, LV, MA, MD, MD, MG, MK, MN, MW, MX, MX, MZ, MZ, NA, NI			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
US 2004204557	A1	20041014	US 2004-771045	
				2004 0203
PRIORITY APPLN. INFO.:			US 2003-446900P	P
				2003 0212

AB The composition comprises a first plurality of first monomeric units containing an aromatic group with ≥ 1 substituent selected from alkyl, heteroalkyl, alkenyl, heteroalkenyl, alkynyl, heteroalkynyl, aryl, arylalkyl, heteroaryl, heteroarylalkyl, and amino, and a second plurality of second multifunctional monomeric units capable of forming a branching point in the polymeric composition. The compns. have an altered morphol. relative to similar nonbranched materials. Thus, a device having a multilayer structure comprising ITO/PEDOT/electroluminescent polymer/Ba/Al, wherein the electroluminescent polymer was obtained by polymerization of 2,7-diiodo-9,9-bis(2-ethylhexyl)-9H-fluorene with tris(4-bromophenyl)amine, was packaged a glass cover fixed with an UV-curable epoxy resin, showing improved efficiency.

IT 743442-47-9P
(electroluminescent copolymer compns. containing multifunctional monomers for active layers in electronic devices)

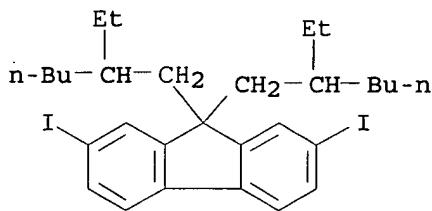
RN 743442-47-9 HCAPLUS

CN Benzenamine, 4-bromo-N,N-bis(4-bromophenyl)-, polymer with 9,9-bis(2-ethylhexyl)-2,7-diiodo-9H-fluorene (9CI) (CA INDEX NAME)

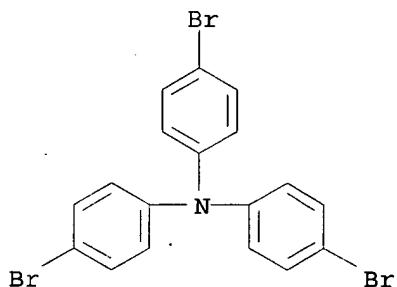
CM 1

CRN 278176-08-2

CMF C29 H40 I2



CM 2

CRN 4316-58-9
CMF C18 H12 Br3 N

IC ICM C08L
 CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 38, 76
 IT 743442-47-9P
 (electroluminescent copolymer compns. containing
 multifunctional monomers for active layers in electronic
 devices)

L18 ANSWER 5 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:534026 HCAPLUS
 DOCUMENT NUMBER: 141:89884
 TITLE: Tricyclic arylamine containing polymers and
 electronic devices therefrom
 INVENTOR(S): Inbasekaran, Michael; Cheng, Yang; Gaynor,
 Scott; Hudack, Michelle L.; Wang, Chun; Welsh,
 Dean M.; Wu, Weishi
 PATENT ASSIGNEE(S): USA
 SOURCE: U.S. Pat. Appl. Publ., 21 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2004127666	A1	20040701	US 2002-324270	

WO 2004060970

A1

20040722

WO 2003-US37532

2002
12192003
1124

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, YU, ZA, ZM, ZW
 RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

US 2002-324270

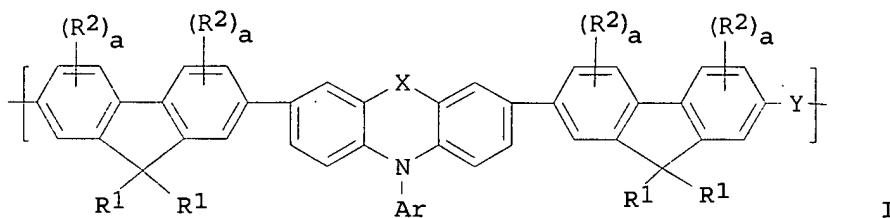
A

2002
1219

OTHER SOURCE(S) :

MARPAT 141:89884

GI



AB A composition comprises a polymer having a repeat unit of I wherein R1 is independently in each occurrence H, C1-40 hydrocarbyl or C3-40 hydrocarbyl containing one or more S, N, O, P or Si atoms, or both of R1 together with the 9-carbon on the fluorene, may form a C5-20 ring structure which may contain one or more S, N, or O atoms; R2 is independently in each occurrence C1-20 hydrocarbyl, C 1-20 hydrocarbyloxy, C1-20 thioether, C1-20 hydrocarbyloxycarbonyl, C1-20 hydrocarbylcarbonyloxy, or cyano; a is independently in each occurrence, 0 or 1; X is O, S, SO₂, C(R₃)₂ or N-R₃ wherein R₃ is aryl or substituted aryl of C₆ to C₄₀, aralkyl of C₆ to C₂₄, or alkyl of C₁ to C₂₄. Preferably R₃ is aryl of C₆ to C₂₄ and more preferably R₃ is an alkylated aryl group of C₆ to C₂₄; Ar is an aryl or heteroaryl group of C₆ to C₄₀ or substituted aryl or heteroaryl group of C₆ to C₄₀, preferably C₆-C₂₄, and most preferably C₆-C₁₄. Y is a conjugated moiety that can vary in each occurrence of the repeat unit.

IT 713761-51-4DP, phenylboronic acid-terminated compound (blue light-emitting; manufacture of tricyclic arylamine containing polymers and electronic devices made from them)

RN 713761-51-4 HCPLUS

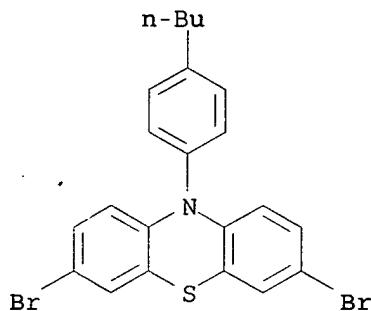
CN 1,4-Benzenediamine, N,N'-bis(4-bromophenyl)-N,N'-bis(4-butylphenyl)-, polymer with 9,9-bis([1,1'-biphenyl]-4-yl)-2,7-dibromo-9H-fluorene, 3,7-dibromo-10-(4-butylphenyl)-10H-phenothiazine, 2,7-dibromo-9,9-dihexyl-9H-fluorene and

2,2'-(9,9-dihexyl-9H-fluorene-2,7-diyl)bis[1,3,2-dioxaborolane]
(9CI) (CA INDEX NAME)

CM 1

CRN 713761-21-8

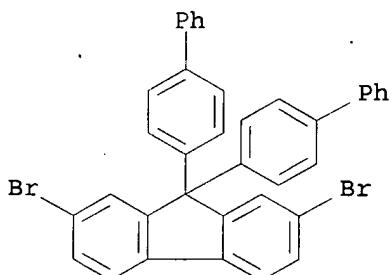
CMF C22 H19 Br2 N S



CM 2

CRN 475579-79-4

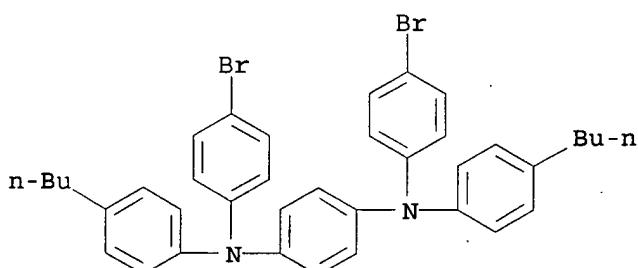
CMF C37 H24 Br2



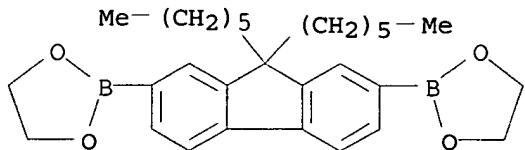
CM 3

CRN 372200-89-0

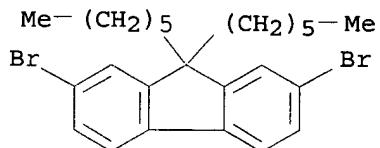
CMF C38 H38 Br2 N2



CM 4

CRN 251981-85-8
CMF C29 H40 B2 O4

CM 5

CRN 189367-54-2
CMF C25 H32 Br2

IC ICM C08G061-12
 INCL 528008000
 CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 76
 IT 713761-51-4DP, phenylboronic acid-terminated compound
 (blue light-emitting; manufacture of tricyclic
 arylamine containing polymers and electronic devices made from
 them)

L18 ANSWER 6 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:533724 HCAPLUS
 DOCUMENT NUMBER: 141:90119
 TITLE: Polyester resin, functional device and organic
 electroluminescent device using polyester
 resin, and method of manufacturing organic
 electroluminescent device
 INVENTOR(S): Iwasaki, Masahiro; Nukada, Katsumi
 PATENT ASSIGNEE(S): Fuji Xerox Co., Ltd, Japan
 SOURCE: U.S. Pat. Appl. Publ., 53 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004126616	A1	20040701	US 2003-631716	2003 0801
JP 2004196910	A2	20040715	JP 2002-365413	

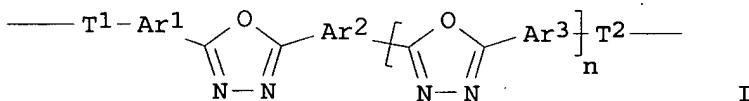
PRIORITY APPLN. INFO.:

JP 2002-365413

A

2002
1217

GI



AB A polyester resin is described comprising at least one repeating unit represented by the general formula I, wherein Ar1, Ar2, and Ar3 independently represent a (un)substituted arylene group, a (un)substituted bivalent heterocyclic group; T1 and T2 represent a linear or branched bivalent hydrocarbon group having 1 to 10 carbon atoms; and n = 0, or 1. An organic electroluminescent device is also described comprising a pair of electrodes composed of an anode and a cathode, at least one of which is transparent or translucent; and at least one organic compound layer that is sandwiched between the electrodes and contains at least one kind of the polyester resin. A method of fabricating the organic electroluminescent device is also described entailing forming at least one organic compound layer on a surface of an electrode; and forming a counter electrode on a surface of the at least one organic compound layer, wherein at least one kind of the polyester resin is used to form at least one layer of the at least one organic compound layer in the step of forming the at least one organic compound layer.

IT 714966-22-0P 714966-24-2P 714966-31-1P
(electron transporting layer; polyester resin, functional device and organic electroluminescent device using polyester resin as electron transporting layer)

RN 714966-22-0 HCAPLUS

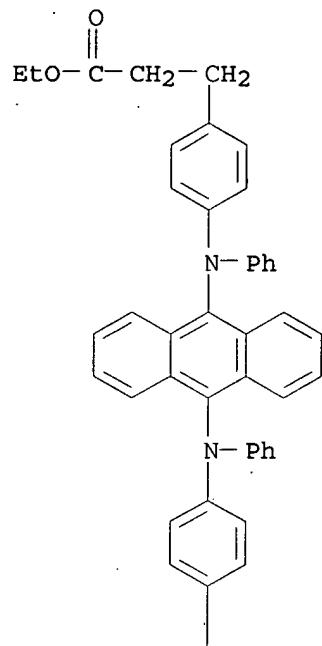
CN Benzenepropanoic acid, 4,4'-(9,10-anthracenediylbis(phenylimino))bis-, diethyl ester, polymer with dimethyl 4,4'-(1,3,4-oxadiazole-2,5-diyl)bis[benzenepropanoate] (9CI) (CA INDEX NAME)

CM 1

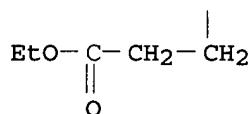
CRN 714966-21-9

CMF C48 H44 N2 O4

PAGE 1-A



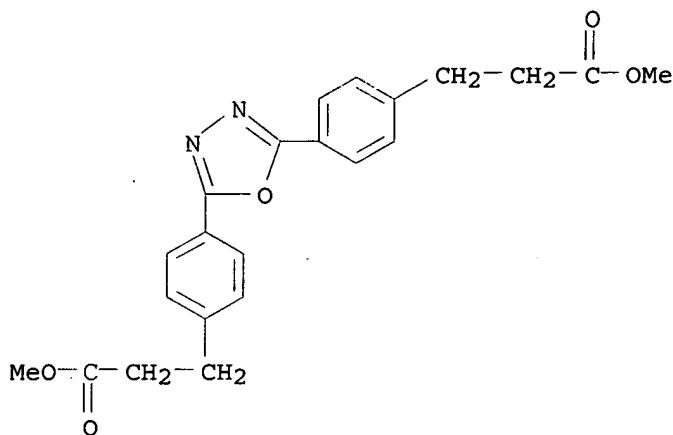
PAGE 2-A



CM 2

CRN 714966-20-8

CMF C22 H22 N2 O5



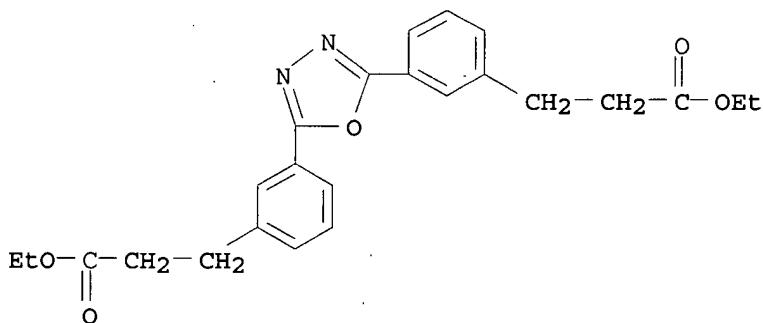
RN 714966-24-2 HCAPLUS

CN Benzenepropanoic acid, 3,3'-(1,3,4-oxadiazole-2,5-diyl)bis-, diethyl ester, polymer with dimethyl 4,4'-(1,1':4',1'''-terphenyl)-4,4'''-diylbis[(3,4-dimethylphenyl)imino]bis[benzenepropanoate] (9CI) (CA INDEX NAME)

CM 1

CRN 714966-23-1

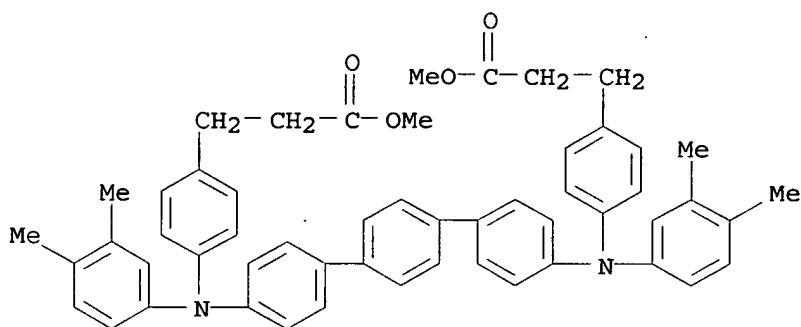
CMF C24 H26 N2 O5



CM 2

CRN 174406-13-4

CMF C54 H52 N2 O4



RN 714966-31-1 HCPLUS

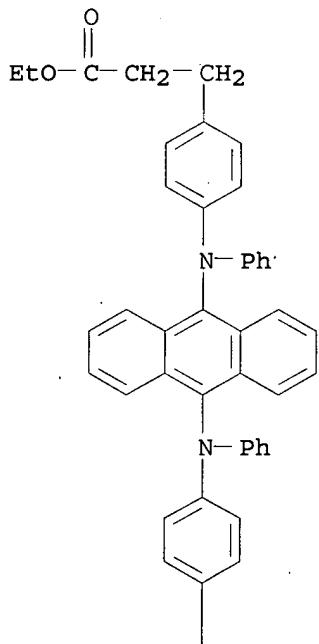
CN Benzenepropanoic acid, 4,4'-(9,10-anthracenediyli)bis(phenylimino)bis-, diethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

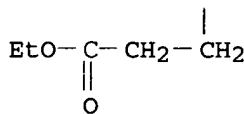
CRN 714966-21-9

CMF C48 H44 N2 O4

PAGE 1-A



PAGE 2-A



IC ICM H05B033-12
 ICS C09K011-06; C08G063-685
 INCL 428690000; 428917000; 313504000; 313506000; 427066000; 257040000;
 528272000; 528423000
 CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 73, 76
 IT 171103-85-8P 714966-18-4P 714966-19-5P 714966-22-0P
 714966-24-2P 714966-26-4P 714966-27-5P 714966-28-6P
 714966-30-0P 714966-31-1P 714966-32-2P 714966-33-3P
 (electron transporting layer; polyester resin, functional
 device and organic electroluminescent device using
 polyester resin as electron transporting layer)

L18 ANSWER 7 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:267207 HCAPLUS
 DOCUMENT NUMBER: 140:304660
 TITLE: Electroactive and electroluminescent polymers,
 monomers, organic electronic devices which
 comprise these polymers and compositions, and
 fabricating these devices
 INVENTOR(S): Roberts, Ralph R.; Bentsen, James G.; Li,
 Yingbo
 PATENT ASSIGNEE(S): 3M Innovative Properties Company, USA
 SOURCE: U.S. Pat. Appl. Publ., 86 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004062930	A1	20040401	US 2002-254218	2002 0925
WO 2004102615	A2	20041125	WO 2003-US24911	2003 0807

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,
 CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI,
 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,
 KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,
 MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,
 SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,
 UG, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,
 DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL,
 PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
 GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2002-254218 A

2002
0925

AB Electroactive polymeric arylanes and intermediates are useful for electronic devices. Donor sheets incorporating light-emitting polymers in a transfer layer were produced for laser induced thermal imaging studies.

IT **642477-39-2**
(hole transport polymer; electronic devices which comprise
light-emitting arylene polymers)

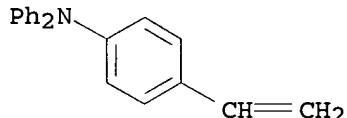
RN 642477-39-2 HCPLUS

CN Benzenamine, 4-ethenyl-N,N-diphenyl-, polymer with ethenylbenzene, block (9CI) (CA INDEX NAME)

CM 1

CRN 25069-74-3

CMF C20 H17 N



CM 2

CRN 100-42-5

CMF C8 H8

H₂C=CH-Ph

IC ICM G03F007-34
ICS G03F007-11

INCL 428411100; 430200000; 430201000; 430319000; 430271100; 428917000;
528004000

CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 73, 74, 76

IT **642477-39-2**
(hole transport polymer; electronic devices which comprise
light-emitting arylene polymers)

L18 ANSWER 8 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:181341 HCPLUS

DOCUMENT NUMBER: 140:358444

TITLE: Polymer light-emitting electrochemical cell
based on a novel poly(aryleneethynylene)
consisting of ethynylfluorene and
tetraphenyldiaminobiphenyl units

AUTHOR(S): Sun, Qingjiang; Zhan, Xiaowei; Zhang, Bin;
Yang, Chunhe; Liu, Yunqi; Li, Yongfang; Zhu,
Daoben

CORPORATE SOURCE: Center for Molecular Science, Institute of
Chemistry, Chinese Academy of Sciences,
Beijing, 100080, Peop. Rep. China

SOURCE:

Polymers for Advanced Technologies (2004),
 15(1-2), 70-74

CODEN: PADTE5; ISSN: 1042-7147

PUBLISHER:

John Wiley & Sons Ltd.

DOCUMENT TYPE:

Journal

LANGUAGE:

English

AB The photo- and electro-luminescence properties of a novel light-emitting poly(aryleneethynylene) (PAE) consisting of ethynyl fluorene and hole-transporting tetraphenyldiaminobiphenyl units have been reported. The emission color of this polymer changes from blue to yellowish green when going from the solution to the film, which is assigned to the formation of aggregates. The light-emitting electrochem. cell (LEC) based on this PAE type polymer has been demonstrated. Light emission is observed from the LEC in both forward and reverse bias modes. The LEC shows the turn-on voltage of 2.9 V and the maximum electroluminescence efficiency of 0.47 cd/A under the forward bias. Introduction of the hole-transporting moiety into the main chain can improve the electroluminescence properties of the PAE type polymer. The a.c. impedance measurements indicate that the operation of the LEC corresponds to the electrochem. doping mechanism.

IT 344782-51-0P 344782-53-2P

(polymer light-emitting electrochem. cell
 based on polyaryleneethynylene consisting of ethynyl fluorene
 and tetraphenyldiaminobiphenyl units)

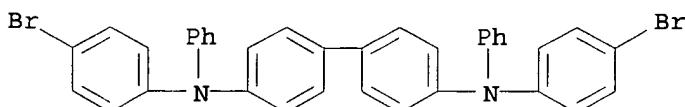
RN 344782-51-0 HCPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-
 diphenyl-, polymer with 9,9-bis(2-ethylhexyl)-2,7-diethynyl-9H-
 fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 344782-48-5

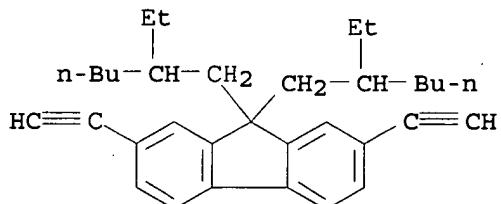
CMF C36 H26 Br2 N2



CM 2

CRN 344782-47-4

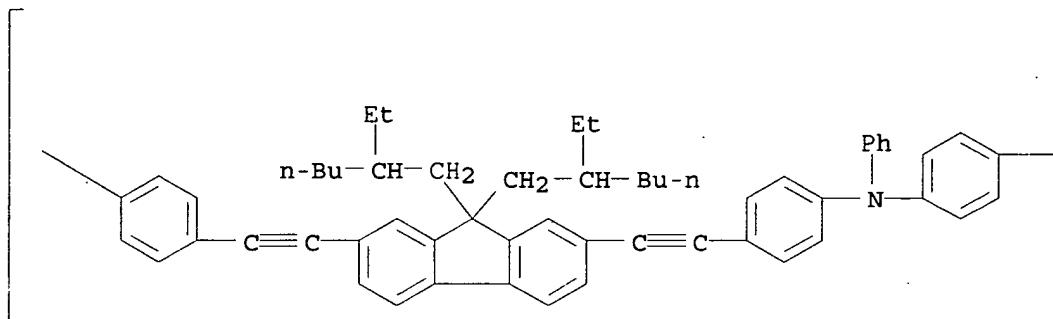
CMF C33 H42



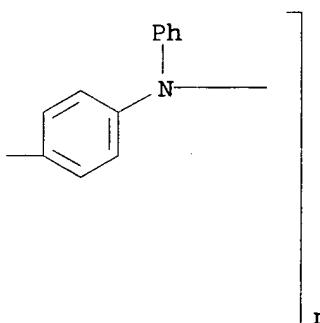
RN 344782-53-2 HCPLUS

CN Poly[(phenylimino)[1,1'-biphenyl]-4,4'-diyl(phenylimino)-1,4-phenylene-1,2-ethynediyl[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl]-1,2-ethynediyl-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 37, 73, 76

IT 344782-51-0P 344782-53-2P
(polymer light-emitting electrochem. cell
based on polyaryleneethynylene consisting of ethynyl fluorene
and tetraphenyldiaminobiphenyl units)

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L18 ANSWER 9 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:158629 HCAPLUS

DOCUMENT NUMBER: 140:391757

TITLE: Synthesis and luminescent properties of
TPA-fluorene copolymers

AUTHOR(S): Guo, Zhigang; Hou, Qiong; Jiang, Changyun;
Zhang, Chi; Yang, Renqiang; Yang, Wei

CORPORATE SOURCE: Institute of Polymer Optoelectronic Materials
and Devices, South China University of
Technology, Guangzhou, 510641, Peop. Rep.
China

SOURCE: Huaxue Tongbao (2004), 67(1), 64-66

CODEN: HHTPAU; ISSN: 0441-3776

PUBLISHER: Huaxue Tongbao Bianjibu

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB A series of high mol. weight, readily soluble copolymers of 9,9-di-2-ethylhexylfluorene with triphenylamine (TPA) (less than or equal to 50(mol)%) are synthesized by Suzuki polycondensation. The introduction of TPA unit into polyfluorene backbone improves the hole transfer ability and depresses the excimer formation. Narrow blue EL emission is obtained for copolymer with TPA content of 20(mol)%. External quantum efficiency is moderately high (1.28%) for such a blue emitter. The threshold voltages of devices from copolymers with TPA content of less than 20(mol) % are low in the range of 4.apprx.5V based on the device configuration: ITO/PEDOT/ polymer/Ba/Al. The results indicate that fluorene-co-triphenylamine copolymers are promising blue-emitting electroluminescent materials.

IT 686350-56-1P

(synthesis and luminescent properties of triphenylamine-fluorene copolymers)

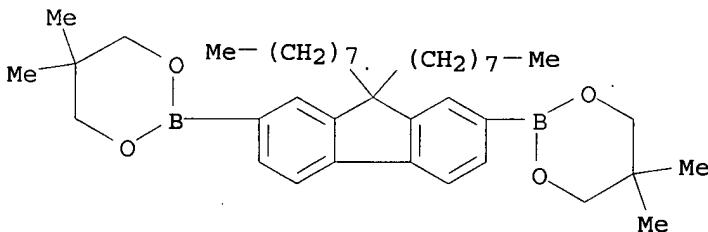
RN 686350-56-1 HCAPLUS

CN Benzenamine, 4-bromo-N-(4-bromophenyl)-N-phenyl-, polymer with 2,7-dibromo-9,9-dioctyl-9H-fluorene and 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[5,5-dimethyl-1,3,2-dioxaborinane] (9CI) (CA INDEX NAME)

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CRN 620970-77-6

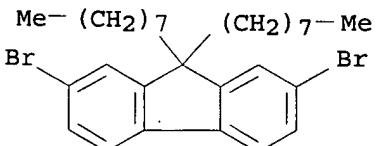
CMF C39 H60 B2 O4



CM 2

CRN 198964-46-4

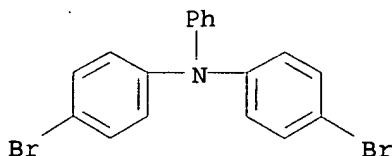
CMF C29 H40 Br2



CM 3

CRN 81090-53-1

CMF C18 H13 Br2 N



CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 73

IT 686350-56-1P
 (synthesis and luminescent properties of
 triphenylamine-fluorene copolymers)

L18 ANSWER 10 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:143208 HCAPLUS

DOCUMENT NUMBER: 140:182404

TITLE: Novel triarylamine polymers and their
 preparation method and usesINVENTOR(S): Suzuki, Takao; Nishiyama, Masakazu; Eguchi,
 Hisao

PATENT ASSIGNEE(S): Tosoh Corporation, Japan

SOURCE: PCT Int. Appl., 37 pp.
 CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2004014985	A1	20040219	WO 2003-JP10074	
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2003 0807

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 KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
 MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,
 SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
 UZ, VC, VN, YU, ZA, ZM, ZW

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JP 2004067970	A2	20040304	JP 2002-233007	
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2002 0809

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2003 0702

EP 1528074	A1	20050504	EP 2003-784579	
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2003 0807

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EE, HU, SK

US 2004262574 A1 20041230 US 2004-490741

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PRIORITY APPLN. INFO.:

JP 2002-233007

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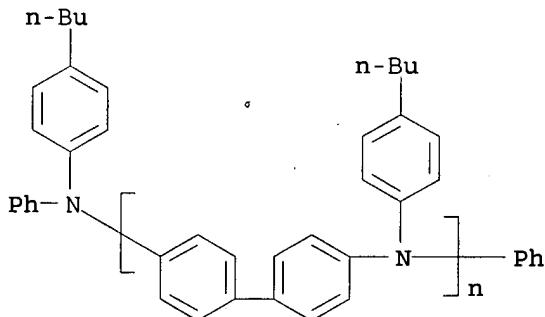
AB A triarylamine polymer with excellent solubility and film-forming properties and improved thermal stability is represented by general formula $\text{Ar}_5\text{N}(\text{Ar}_6)[\text{Ar}_1\text{N}(\text{Ar}_3)\text{Ar}_2\text{N}(\text{Ar}_4)]^m\text{Ar}_7$ [wherein Ar_1 , Ar_2 , Ar_3 , Ar_4 , Ar_5 , Ar_6 , and Ar_7 each independently represents an (un)substituted C₆-60 aromatic group, provided that Ar_1 and Ar_2 are the same or different and Ar_3 and Ar_4 are the same or different; and $m \geq 1$]. The triarylamine polymer is prepared and used in manufacturing electronic devices such as electroluminescent devices. Thus, reacting 4,4'-diphenyl diiodide with 4-n-butyylaniline in o-xylene in the presence of sodium-tert-butoxide and then with bromobenzene in the presence of tris(dibenzylidene acetone)dipalladium:chloroform complex and tri-tert-butylphosphine gave a triarylamine polymer having T_g 171°.

IT 659741-99-8P 659742-01-5P 659742-02-6P
659742-04-8P 659742-07-1P 659742-09-3P
659742-10-6P

(triarylamine polymers useful for manufacturing electronic devices such as electroluminescent devices)

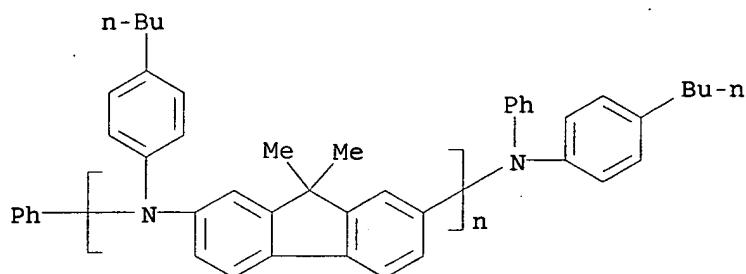
RN 659741-99-8 HCAPLUS

CN Poly[[(4-butylphenyl)imino][1,1'-biphenyl]-4,4'-diyl], α -phenyl- ω -[(4-butylphenyl)phenylamino]- (9CI) (CA
INDEX NAME)

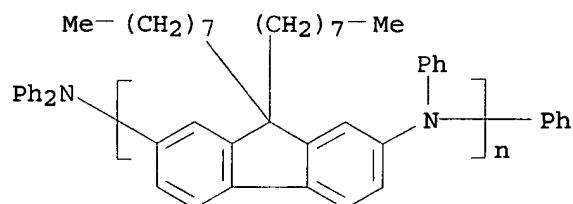


RN 659742-01-5 HCAPLUS

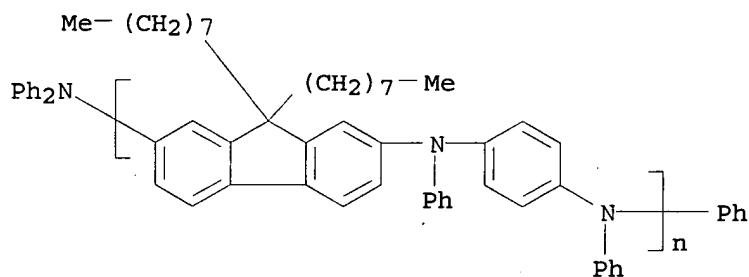
CN Poly[[(4-butylphenyl)imino](9,9-dimethyl-9H-fluorene-2,7-diyl)], α -phenyl- ω -[(4-butylphenyl)phenylamino]- (9CI) (CA
INDEX NAME)



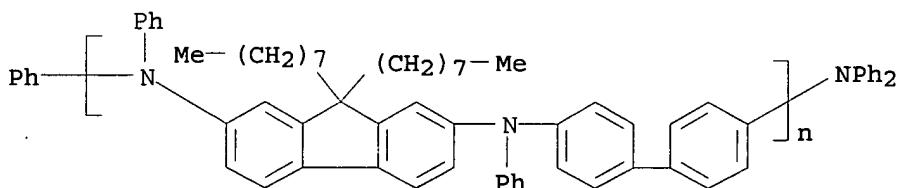
RN 659742-02-6 HCPLUS

CN Poly[(phenylimino)(9,9-dioctyl-9H-fluorene-2,7-diyl)],
α-phenyl-ω-(diphenylamino)- (9CI) (CA INDEX NAME)

RN 659742-04-8 HCPLUS

CN Poly[(phenylimino)-1,4-phenylene(phenylimino)(9,9-dioctyl-9H-
fluorene-2,7-diyl)], α-phenyl-ω-(diphenylamino)- (9CI)
(CA INDEX NAME)

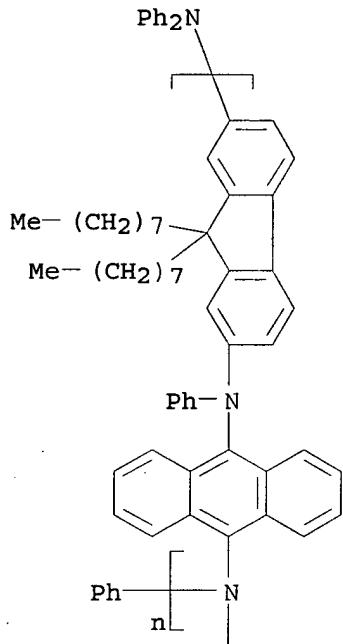
RN 659742-07-1 HCPLUS

CN Poly[(phenylimino)(9,9-dioctyl-9H-fluorene-2,7-
diyl)(phenylimino)[1,1'-biphenyl]-4,4'-diyl], α-phenyl-
ω-(diphenylamino)- (9CI) (CA INDEX NAME)

RN 659742-09-3 HCAPLUS

CN Poly[(phenylimino)-9,10-anthracenediyl(phenylimino)(9,9-dioctyl-9H-fluorene-2,7-diyl)], α -phenyl- ω -(diphenylamino)- (9CI)
(CA INDEX NAME)

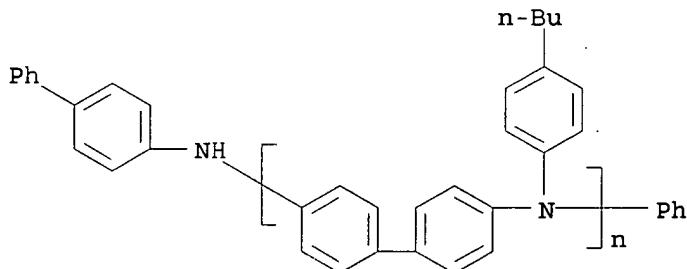
PAGE 1-A



PAGE 2-A



RN 659742-10-6 HCAPLUS

CN Poly[[(4-butylphenyl)imino][1,1'-biphenyl]-4,4'-diyl],
 α -phenyl- ω -[(1,1'-biphenyl)-4-ylamino]- (9CI) (CA
INDEX NAME)

IC ICM C08G073-02

CC ICS H05B033-14; H05B033-22
 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 76

IT 404596-11-8DP, reaction products with bromobenzene
 659741-98-7DP, 4-n-Butylaniline-4,4'-diphenyl diiodide copolymer,
 reaction products with bromobenzene and optionally with
 diphenylamine 659741-99-8P 659742-00-4DP, reaction
 products with bromobenzene 659742-01-5P
 659742-02-6P 659742-03-7DP, reaction products with
 bromobenzene 659742-04-8P 659742-06-0DP, reaction
 products with bromobenzene 659742-07-1P 659742-08-2DP,
 reaction products with bromobenzene 659742-09-3P
 659742-10-6P
 (triarylamine polymers useful for manufacturing electronic devices
 such as electroluminescent devices)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L18 ANSWER 11 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:913258 HCAPLUS
 DOCUMENT NUMBER: 139:396488
 TITLE: Fluorenyl group-containing polymers, their
 preparation and uses for optical applications
 particularly blue electroluminescent devices
 with long service life
 INVENTOR(S): O'Dell, Richard; Towns, Carl; Tierney, Brian;
 O'Connor, Steve; Grizzi, Ilaria; Foden, Clare;
 Patel, Nalinkumar; Leadbeater, Mark; Murtagh,
 Lorraine
 PATENT ASSIGNEE(S): Cambridge Display Technology Limited, UK
 SOURCE: PCT Int. Appl., 21 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 3
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2003095586	A1	20031120	WO 2003-GB1991	2003 0509
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WO 2002092723	A1	20021121	WO 2002-GB2167	2002 0510
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WO 2002092724 A1 20021121 WO 2002-GB2179

2002
0510

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 ML, MR, NE, SN, TD, TG

EP 1504075 A1 20050209 EP 2003-727649

2003
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 MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
 EE, HU, SK

PRIORITY APPLN. INFO.:

WO 2002-GB2167

A

2002
0510

WO 2002-GB2179

A

2002
0510

GB 2002-26937

A

2002
1119

GB 2003-6410

A

2003
0320

GB 2001-11549

A

2001
0511

US 2001-315623P

P

2001
0829

WO 2003-GB1991

W

2003
0509

AB The polymers comprise a first, optionally substituted, 9,9-di(aryl or heteroaryl)-substituted fluorenediyl repeat unit and

XN(Ar)XN(Ar)X (X = arylene, heteroarylene; Ar = aryl, heteroaryl group) unit and optionally <5 mol% (optionally substituted) XN(Ar)X having a single N atom in its backbone. Thus, a blue electroluminescent polymer was prepared by reaction of 9,9-di-n-octylfluorene-2,7-di(ethylenyl boronate) (0.5 equiv), 2,7-dibromo-9,9-diphenylfluorene (0.35 equiv) and N,N'-di(4-bromophenyl)-N,N'-di(4-n-butylphenyl)-1,4-diaminobenzene (0.15 equiv).

IT 625416-36-6P, N,N'-Di(4-bromophenyl)-N,N'-di(4-n-butylphenyl)-1,4-diaminobenzene-9,9-di-n-octylfluorene-2,7-di(ethylenyl boronate)-2,7-dibromo-9,9-diphenylfluorene copolymer (manufacture of fluorenyl group-containing polymers useful for optical applications particularly blue electroluminescent devices with long service life)

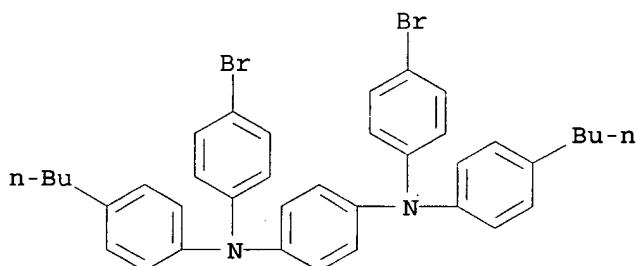
RN 625416-36-6 HCPLUS

CN 1,4-Benzenediamine, N,N'-bis(4-bromophenyl)-N,N'-bis(4-butylphenyl)-, polymer with 2,7-dibromo-9,9-diphenyl-9H-fluorene and 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 372200-89-0

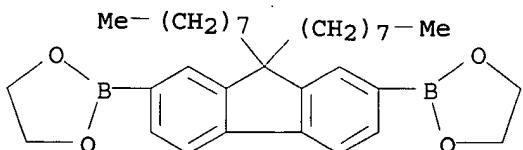
CMF C38 H38 Br2 N2



CM 2

CRN 210347-49-2

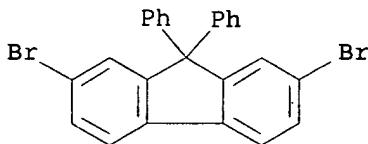
CMF C33 H48 B2 O4



CM 3

CRN 186259-63-2

CMF C25 H16 Br2



IC ICM C09K011-06
 CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 38, 74
 IT 625416-36-6P, N,N'-Di(4-bromophenyl)-N,N'-di(4-n-butylphenyl)-1,4-diaminobenzene-9,9-di-n-octylfluorene-2,7-di(ethylenyl boronate)-2,7-dibromo-9,9-diphenylfluorene copolymer
 (manufacture of fluorenyl group-containing polymers useful for optical applications particularly blue **electroluminescent** devices with long service life)
 REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

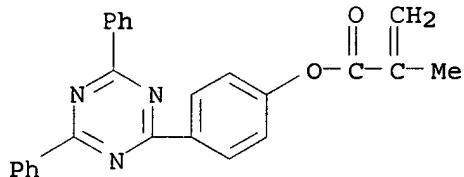
L18 ANSWER 12 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:850369 HCAPLUS
 DOCUMENT NUMBER: 140:43029
 TITLE: Characteristics of a single-layered organic electroluminescent device using a carrier-transporting copolymer and a nonconjugated light-emitting polymer
 AUTHOR(S): Lee, Chang Ho; Ryu, Seung Hoon; Oh, Se Young
 CORPORATE SOURCE: Department of Chemical Engineering, Sogang University, Seoul, 121-742, S. Korea
 SOURCE: Journal of Polymer Science, Part B: Polymer Physics (2003), 41(21), 2733-2743
 CODEN: JPBPEM; ISSN: 0887-6266
 PUBLISHER: John Wiley & Sons, Inc.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB A carrier-transporting copolymer having a triphenylamine moiety as a hole-transporting unit and a triazine moiety as an electron-transporting unit was prepared, the units being located in the polymer side chain. A nonconjugated light-emitting polymer having a perylene moiety in the polymer side chain was also synthesized, the perylene moiety acting as an emitting unit. The polymers were soluble in most organic solvents, such as chlorobenzene, THF, chloroform, and benzene. A single-layered electroluminescent device consisting of ITO/carrier-transporting copolymer and an emitting material, such as 4-(dicyanomethylene)-2-methyl-6-(4-dimethylaminostyryl)-4H-pyran (DCM) or the light-emitting polymer/Al mixts., exhibited maximum external quantum efficiency at the emitting material concentration of 30%. The device emitted red or blue light according to the emitting material used. When CsF was used as the electron-injecting material, the drive voltage decreased to 7 V, and the highest quantum efficiency was 0.5%.

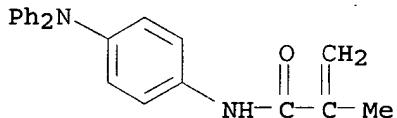
IT 471294-90-3P
 (single-layered organic **electroluminescent** devices with carrier-transporting copolymer and nonconjugated **light-emitting** polymer)
 RN 471294-90-3 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 4-(4,6-diphenyl-1,3,5-triazin-2-yl)phenyl ester, polymer with N-[4-(diphenylamino)phenyl]-2-methyl-

2-propenamide (9CI) (CA INDEX NAME)

CM 1

CRN 471294-88-9
CMF C25 H19 N3 O2

CM 2

CRN 163684-75-1
CMF C22 H20 N2 O

CC 37-5 (Plastics Manufacture and Processing)

Section cross-reference(s): 73

IT 471294-90-3P 635316-56-2P
(single-layered organic electroluminescent devices with carrier-transporting copolymer and nonconjugated light-emitting polymer)

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 13 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:850368 HCPLUS

DOCUMENT NUMBER: 140:43284

TITLE: Organic light-emitting diodes with multiple photocrosslinkable hole-transport layers

AUTHOR(S): Domerco, Benoit; Hreha, Richard D.; Zhang, Ya-Dong; Haldi, Andreas; Barlow, Stephen; Marder, Seth R.; Kippelen, Bernard

CORPORATE SOURCE: Optical Sciences Center, University of Arizona, Tucson, AZ, 85721, USA

SOURCE: Journal of Polymer Science, Part B: Polymer Physics (2003), 41(21), 2726-2732
CODEN: JPBPEM; ISSN: 0887-6266

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We report on photocrosslinkable hole-transport polymers and their use as photodefinable hole-transport layers in organic light-emitting diodes. The polymers were obtained by copolymer. of bis(diarylarnino)biphenyl-based acrylate monomers with

cinnamate-functionalized acrylate moieties. Polymers with a range of redox potentials were obtained by varying the substitution patterns of the bis(diarylamino)biphenyl units. The 2 + 2 cycloaddn. of the cinnamate moieties following UV irradiation renders the material insol. This allows for patterning of the polymer and simultaneously enables the fabrication of multilayer structures from solution. Hole mobilities were measured in these copolymers with the time-of-flight technique. Their performance as hole-transport layers in light-emitting diodes, with tris(8-hydroxyquinolinato)aluminum as the emitter and electron-transport layer, is evaluated. Electroluminescent devices with multiple hole-transport layers having different ionization potentials were fabricated from solution, and the quantum efficiency of these devices was greater than that for devices based on a single hole-transport layer.

IT 464216-93-1P 464216-94-2P 464216-95-3P
634917-45-6P

(organic light-emitting diodes with multiple photocrosslinkable hole-transport photopolymer layers)

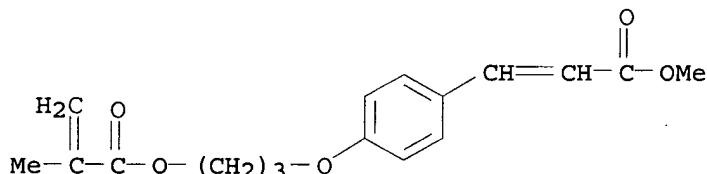
RN 464216-93-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[4-(3-methoxy-3-oxo-1-propenyl)phenoxy]propyl ester, polymer with 3-[4-[(4-methoxyphenyl)[4'-(4-methoxyphenyl)(3-methylphenyl)amino][1,1'-biphenyl]-4-yl]amino]phenoxy]propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

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CRN 443923-88-4

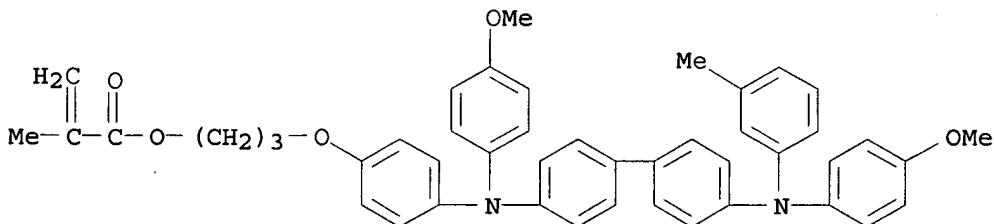
CMF C17 H20 O5



CM 2

CRN 433716-28-0

CMF C46 H44 N2 O5



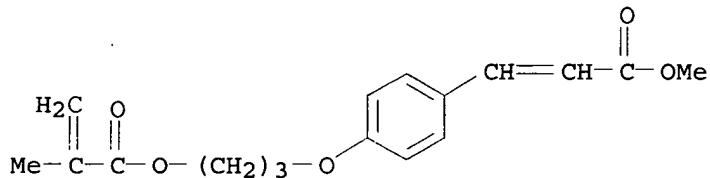
RN 464216-94-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[4-(3-methoxy-3-oxo-1-

propenyl)phenoxy]propyl ester, polymer with 3-[4-[(3-methylphenyl)[4'-(3-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]amino]phenoxy]propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

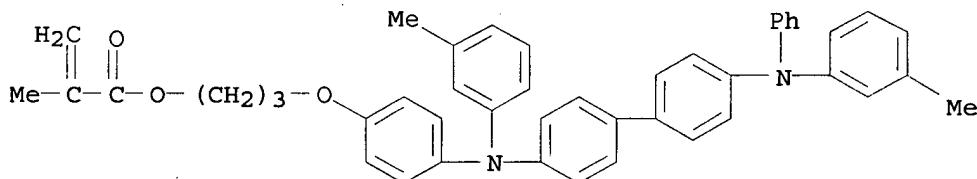
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CMF C17 H20 O5



CM 2

CRN 433716-27-9
CMF C45 H42 N2 O3

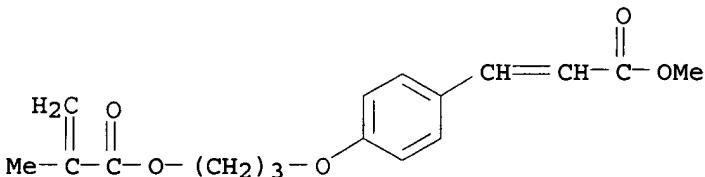


RN 464216-95-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[4-[(3-fluorophenyl)[4'-(3-fluorophenyl)(3-methylphenyl)amino][1,1'-biphenyl]-4-yl]amino]phenoxy]propyl ester, polymer with 3-[4-(3-methoxy-3-oxo-1-propenyl)phenoxy]propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

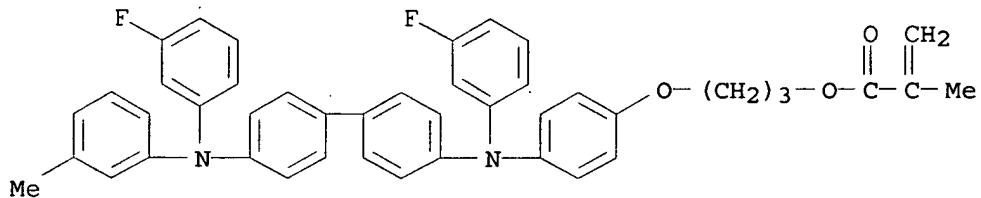
CM 1

CRN 443923-88-4
CMF C17 H20 O5



CM 2

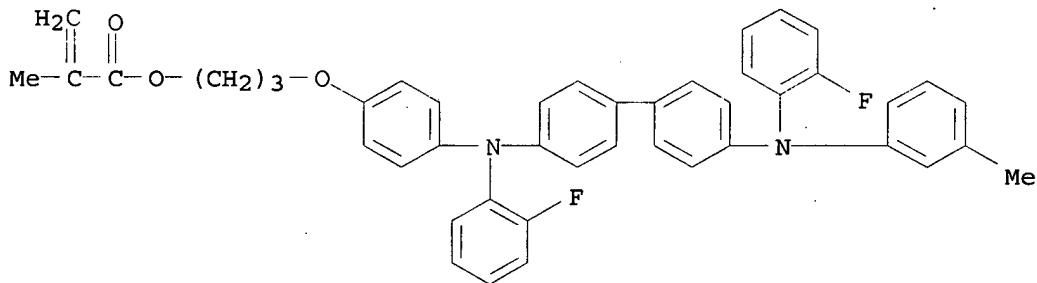
CRN 433716-29-1
 CMF C44 H38 F2 N2 O3



RN 634917-45-6 HCPLUS
 CN 2-Propenoic acid, 2-methyl-, 3-[4-[(2-fluorophenyl)[4'-(2-fluorophenyl)(3-methylphenyl)amino][1,1'-biphenyl]-4-yl]amino]phenoxy]propyl ester, polymer with 3-[4-(3-methoxy-3-oxo-1-propenyl)phenoxy]propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

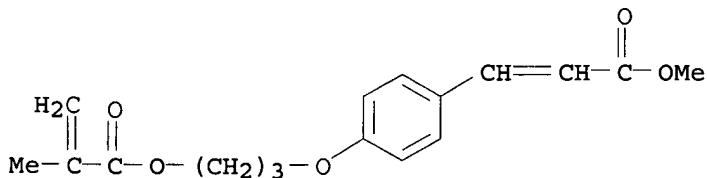
CM 1

CRN 634917-44-5
 CMF C44 H38 F2 N2 O3



CM 2

CRN 443923-88-4
 CMF C17 H20 O5



CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 76
 IT 464216-93-1P 464216-94-2P 464216-95-3P
 634917-45-6P
 (organic light-emitting diodes with multiple

photocrosslinkable hole-transport photopolymer layers)
 REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

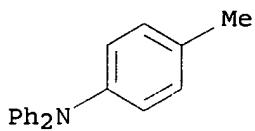
L18 ANSWER 14 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:582506 HCAPLUS
 DOCUMENT NUMBER: 139:134283
 TITLE: Arylamine-polycyclic aryl compound copolymers
 and manufacture thereof for organic
 electroluminescent devices
 INVENTOR(S): Sato, Hisaya; Yamaguchi, Ryoichi
 PATENT ASSIGNEE(S): Tokyo University of Agriculture & Technology,
 Japan; Yanai Chemical Industry Co., Ltd.
 SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003212977	A2	20030730	JP 2002-9937	2002 0118
PRIORITY APPLN. INFO.:			JP 2002-9937	2002 0118

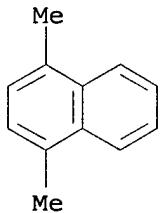
AB The copolymers, showing high electron transport property, are oxidative polymerization products from arylamines (e.g., diphenylamine, triphenylamine) and polycyclic aryl compds. (e.g., naphthalene, anthracene). Thus, methyltriphenylamine and phenanthrene were polymerized in the presence of FeCl₃ to give a copolymer showing the maximum absorption wavelength 265 nm (cyclic voltammogram is shown).
 IT 523983-37-1P, (4-Methylphenyl)diphenylamine-1,4-
 Dimethylnaphthalene copolymer 523983-39-3P
 523983-41-7P, (4-Methylphenyl)diphenylamine-phenanthrene
 copolymer 566897-69-6P, (4-Butylphenyl)diphenylamine-
 phenanthrene copolymer 566897-70-9P,
 (4-Butylphenyl)diphenylamine-anthracene copolymer
 566897-71-0P, (4-Methylphenyl)diphenylamine-chrysene
 copolymer 566897-72-1P, (4-Butylphenyl)diphenylamine-9,9-
 dibutylfluorene copolymer
 (manufacture of arylamine-polycyclic aryl compound copolymers for organic
 electroluminescent devices)
 RN 523983-37-1 HCAPLUS
 CN Benzenamine, 4-methyl-N,N-diphenyl-, polymer with
 1,4-dimethylnaphthalene (9CI) (CA INDEX NAME)

CM 1

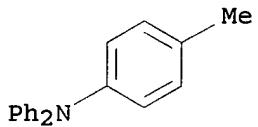
CRN 4316-53-4
CMF C19 H17 N



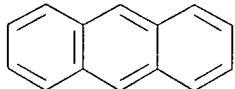
CM 2

CRN 571-58-4
CMF C12 H12RN 523983-39-3 HCPLUS
CN Benzenamine, 4-methyl-N,N-diphenyl-, polymer with anthracene (9CI)
(CA INDEX NAME)

CM 1

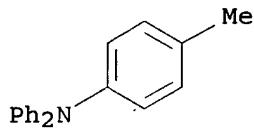
CRN 4316-53-4
CMF C19 H17 N

CM 2

CRN 120-12-7
CMF C14 H10RN 523983-41-7 HCPLUS
CN Benzenamine, 4-methyl-N,N-diphenyl-, polymer with phenanthrene
(9CI) (CA INDEX NAME)

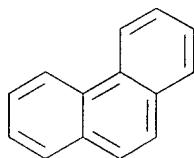
CM 1

CRN 4316-53-4
CMF C19 H17 N



CM 2

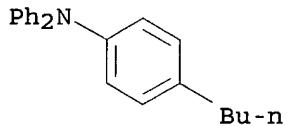
CRN 85-01-8
CMF C14 H10



RN 566897-69-6 HCPLUS
CN Benzenamine, 4-butyl-N,N-diphenyl-, polymer with phenanthrene
(9CI) (CA INDEX NAME)

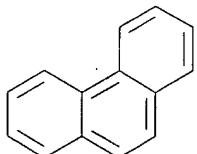
CM 1

CRN 152270-84-3
CMF C22 H23 N



CM 2

CRN 85-01-8
CMF C14 H10

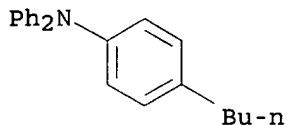


RN 566897-70-9 HCPLUS

CN Benzenamine, 4-butyl-N,N-diphenyl-, polymer with anthracene (9CI)
(CA INDEX NAME)

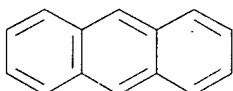
CM 1

CRN 152270-84-3
CMF C22 H23 N



CM 2

CRN 120-12-7
CMF C14 H10

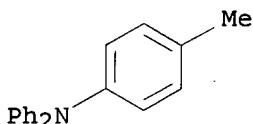


RN 566897-71-0 HCPLUS

CN Benzenamine, 4-methyl-N,N-diphenyl-, polymer with chrysene (9CI)
(CA INDEX NAME)

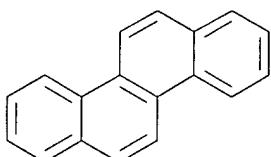
CM 1

CRN 4316-53-4
CMF C19 H17 N



CM 2

CRN 218-01-9
CMF C18 H12



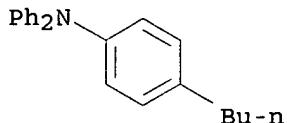
RN 566897-72-1 HCPLUS

CN Benzenamine, 4-butyl-N,N-diphenyl-, polymer with
9,9-dibutyl-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 152270-84-3

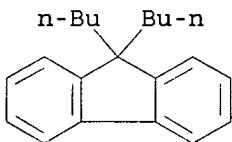
CMF C22 H23 N



CM 2

CRN 15069-42-8

CMF C21 H26

IC ICM C08G061-12
ICS H05B033-14CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 73IT 523983-37-1P, (4-Methylphenyl)diphenylamine-1,4-
Dimethylnaphthalene copolymer 523983-39-3P
523983-41-7P, (4-Methylphenyl)diphenylamine-phenanthrene
copolymer 566897-69-6P, (4-Butylphenyl)diphenylamine-
phenanthrene copolymer 566897-70-9P,
(4-Butylphenyl)diphenylamine-anthracene copolymer
566897-71-0P, (4-Methylphenyl)diphenylamine-chrysene
copolymer 566897-72-1P, (4-Butylphenyl)diphenylamine-9,9-
dibutylfluorene copolymer
(manufacture of arylamine-polycyclic aryl compound copolymers for organic
electroluminescent devices)

L18 ANSWER 15 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:551570 HCPLUS

DOCUMENT NUMBER: 139:101841

TITLE: Process for production of high-molecular
compounds useful for polymer LED or the likeINVENTOR(S): Noguchi, Takanobu; Tsubata, Yoshiaki; Doi,
Shuji

PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan

SOURCE: PCT Int. Appl., 71 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003057762	A1	20030717	WO 2002-JP13567	2002 1226
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG	JP 2003253001	A2	20030910
			JP 2002-376679	2002 1226
PRIORITY APPLN. INFO.:			JP 2001-398871	A
				2001 1228

AB A process for production of high-mol. compds. is disclosed, characterized by comprising the steps of: (A) polymerizing one or more monomers X1-Ar-X2 (X1, X2 = reactive groups which can react with each other to form a bond; Ar = arylene, divalent heterocyclic group, divalent aromatic amine group; provided that Ar bears at least one Y reactive group substantially inert to X1 and X2), and (B) reacting the Y-bearing polymer with a compound having a Z reactive group which can react with the Y reactive group to form a bond. Thus, adding bis(1,5-cyclooctadiene)nickel(0) complex 4.0 to a mixture of the phosphonate ester derived from 2,5-dibromo-3-(bromomethyl)benzene and tri-Et phosphite, 0.29, 1,4-dibromo-2-methoxy-5-isoamylloxybenzene 1.9 and 2,2'-bipyridyl 2.2 g in 160 mL THF and mixing at 60° for 3 h then working up gave a polymer bearing isoamyl ether group and phosphonate ester group. Mixing 0.2 g the polymer with 0.1 g 4-n-hexyloxybenzaldehyde, adding THF (50 mL), combining with a solution of 0.1 g K tert-butoxide in THF (5 mL) and reacting at room temperature for 2 h gave a modified polymer with Mw 8.0x10⁴ and Mn 3.2x10⁴. A test piece from the polymer showed fluorescent peak at 422 nm and fluorescent intensity of 1.5.

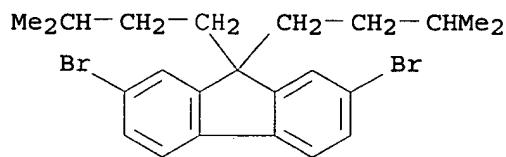
IT 561066-59-9DP, reaction products with phosphonate esters
561066-62-4P 561066-63-5DP, reaction products with phosphonate esters and other modifiers
(process for production of high-mol. polyphenyl compds. useful for polymer LED or the like)

RN 561066-59-9 HCAPLUS

CN Benzaldehyde, 4-[bis(4-bromophenyl)amino]-, polymer with 2,7-dibromo-9,9-bis(3-methylbutyl)-9H-fluorene and 2,7-dibromo-9,9-dioctyl-9H-fluorene (9CI) (CA INDEX NAME)

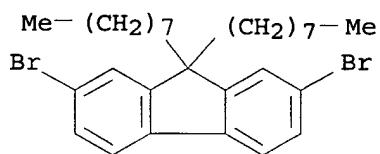
CM 1

CRN 500230-44-4
 CMF C23 H28 Br2



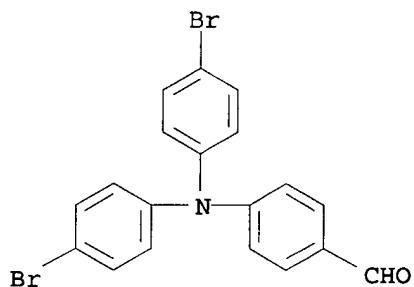
CM 2

CRN 198964-46-4
 CMF C29 H40 Br2



CM 3

CRN 25069-38-9
 CMF C19 H13 Br2 N O

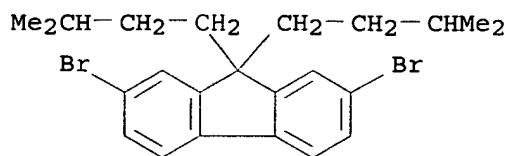


RN 561066-62-4 HCPLUS

CN Benzaldehyde, 4-[bis(4-bromophenyl)amino]-, polymer with
 N,N'-bis(4-bromo-3-methylphenyl)-N,N'-diphenyl[1,1'-biphenyl]-4,4'-diamine, 2,7-dibromo-9,9-bis(3-methylbutyl)-9H-fluorene and
 2,7-dibromo-9,9-dioctyl-9H-fluorene (9CI) (CA INDEX NAME)

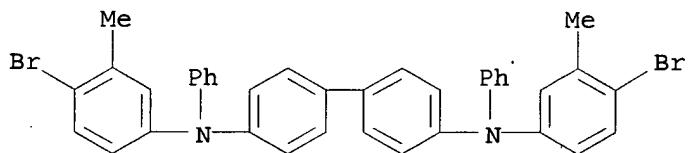
CM 1

CRN 500230-44-4
 CMF C23 H28 Br2



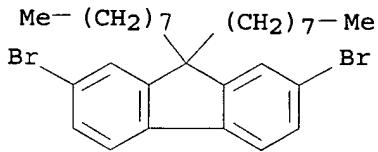
CM 2

CRN 444795-95-3
CMF C38 H30 Br2 N2



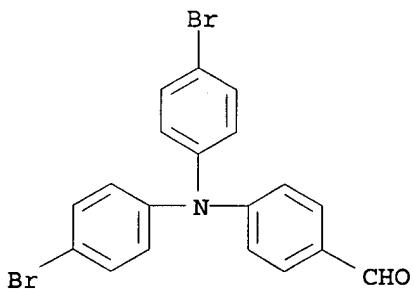
CM 3

CRN 198964-46-4
CMF C29 H40 Br2



CM 4

CRN 25069-38-9
CMF C19 H13 Br2 N O



RN 561066-63-5 HCAPLUS

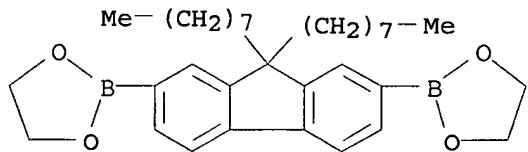
CN Benzaldehyde, 4-[bis(4-bromophenyl)amino]-, polymer with 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[1,3,2-dioxaborolane]

(9CI) (CA INDEX NAME)

CM 1

CRN 210347-49-2

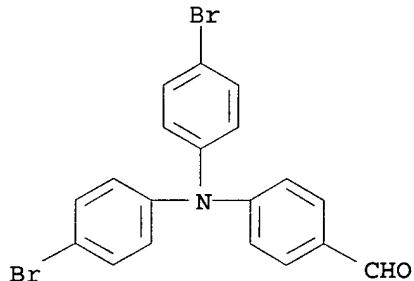
CMF C33 H48 B2 O4



CM 2

CRN 25069-38-9

CMF C19 H13 Br2 N O

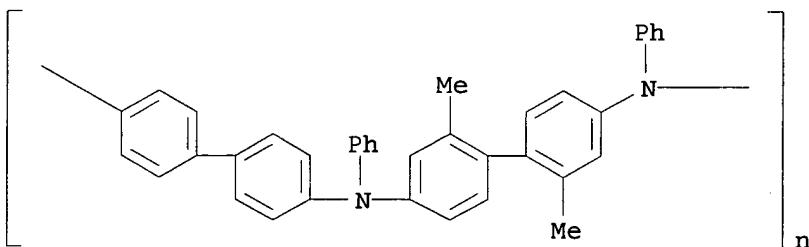


IT 201026-17-7P 561066-61-3DP, phosphonato group-terminated

(process for production of high-mol. polyphenyl compds. useful for polymer LED or the like)

RN 201026-17-7 HCPLUS

CN Poly[(phenylimino)(2,2'-dimethyl[1,1'-biphenyl]-4,4'-diyl)(phenylimino)[1,1'-biphenyl]-4,4'-diyl] (9CI) (CA INDEX NAME)

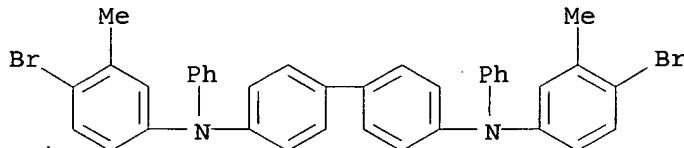


RN 561066-61-3 HCPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromo-3-methylphenyl)-N,N'-diphenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 444795-95-3
 CMF C38 H30 Br2 N2



IC ICM C08G085-00
 ICS H05B033-14; C09K011-06
 CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 73, 76
 IT 5736-94-7DP, 4-n-Hexyloxybenzaldehyde, reaction products with functional group-containing polyphenylenes 118578-89-5DP, Diethyl 4-tert-butylbenzylphosphonate, reaction products with functional group-containing polyphenylenes 201802-67-7DP, reaction products with bromine-containing functional polyphenylenes 561066-59-9DP, reaction products with phosphonate esters 561066-60-2DP, reaction products with functional group-containing polyphenylenes 561066-62-4P 561066-63-5DP, reaction products with phosphonate esters and other modifiers 561066-64-6DP, reaction products with aldehyde group-containing polyphenylenes 561066-65-7DP, reaction products with functional group-containing polyphenylenes (process for production of high-mol. polyphenyl compds. useful for polymer LED or the like)
 IT 201026-17-7P 561066-61-3DP, phosphonato group-terminated (process for production of high-mol. polyphenyl compds. useful for polymer LED or the like)

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 16 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:509941 HCPLUS
 DOCUMENT NUMBER: 139:69957
 TITLE: Copolymer or polymer composition and polymer light-emitting device
 INVENTOR(S): Suzuki, Tomoyuki; Doi, Shuji; Noguchi, Takanobu; Okada, Akihiko
 PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan
 SOURCE: Eur. Pat. Appl., 24 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 1323762	A2	20030702	EP 2002-258715	2002 1218

EP 1323762	A3	20040324		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
JP 2004002654	A2	20040108	JP 2002-340533	2002 1125
US 2003143429	A1	20030731	US 2002-322046	2002 1218
PRIORITY APPLN. INFO.:			JP 2001-385833	A 2001 1219
			JP 2002-95650	A 2002 0329

AB A fluorene group-containing copolymer has a polystyrene reduced number average mol. weight of 103-108 has an excellent solubility in an organic solvent, and a high glass transition temperature, and is useful in polymer LEDs. Optionally, blends of polymers are useful in LEDs. A polymer was prepared by polymerization of 2,7-dibromo-9,9-diisopentylfluorene, 2,7-dibromo-9,9-dioctylfluorene, and N,N'-bis(4-bromophenyl)-N,N'-(bis-4-n-butylphenyl)-1,4-phenylenediamine in the presence of bis(1,5-cyclooctadiene)nickel(0).

IT 444796-14-9P 473895-36-2P
(copolymer or polymer composition and polymer light-emitting device)

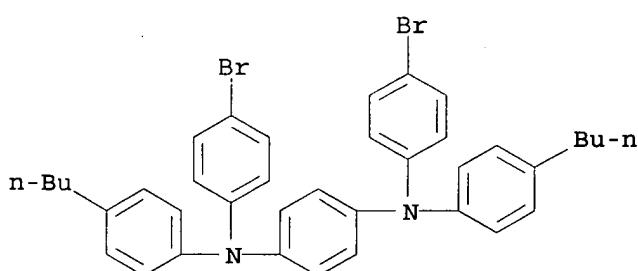
RN 444796-14-9 HCAPLUS

CN 1,4-Benzenediamine, N,N'-bis(4-bromophenyl)-N,N'-bis(4-butylphenyl)-, polymer with 2,7-dibromo-9,9-dioctyl-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 372200-89-0

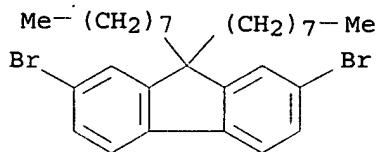
CMF C38 H38 Br2 N2



CM 2

CRN 198964-46-4

CMF C29 H40 Br2



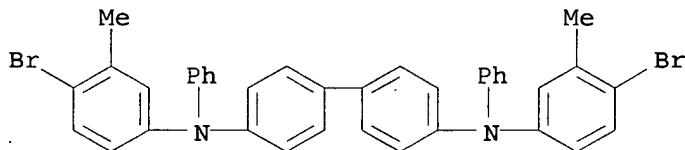
RN 473895-36-2 HCPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromo-3-methylphenyl)-N,N'-diphenyl-, polymer with 1,4-dibromo-2,5-bis[(3,7-dimethyloctyl)oxy]benzene (9CI) (CA INDEX NAME)

CM 1

CRN 444795-95-3

CMF C38 H30 Br2 N2

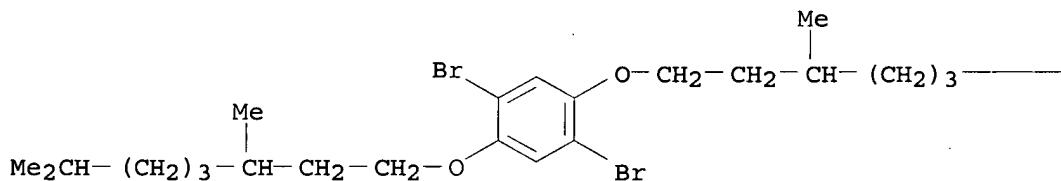


CM 2

CRN 325461-28-7

CMF C26 H44 Br2 O2

PAGE 1-A



PAGE 1-B

—CHMe2

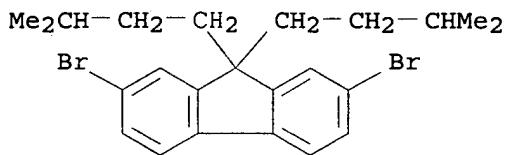
IT 552333-61-6P, 2,7-Dibromo-9,9-diisopentylfluorene-2,7-dibromo-9,9-dioctylfluorene-N,N'-bis(4-bromophenyl)-N,N'-(bis-4-n-butylphenyl)-1,4-phenylenediamine copolymer (copolymer or polymer composition and polymer light-emitting device)

RN 552333-61-6 HCPLUS

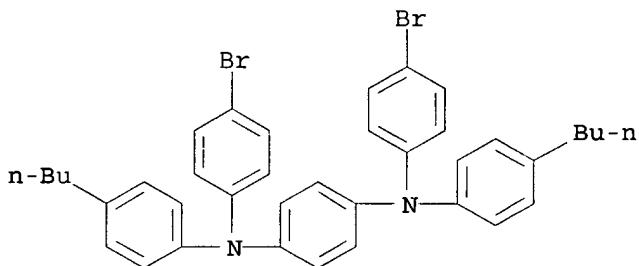
CN 1,4-Benzenediamine, N,N'-bis(4-bromophenyl)-N,N'-bis(4-butylphenyl)-, polymer with 2,7-dibromo-9,9-bis(3-methylbutyl)-9H-fluorene and 2,7-dibromo-9,9-dioctyl-9H-fluorene (9CI) (CA INDEX)

NAME)

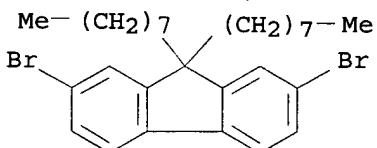
CM 1

CRN 500230-44-4
CMF C23 H28 Br2

CM 2

CRN 372200-89-0
CMF C38 H38 Br2 N2

CM 3

CRN 198964-46-4
CMF C29 H40 Br2

IC ICM C08G061-02
 CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 73
 IT 210347-50-5P 444796-14-9P 473895-36-2P
 552333-62-7P 552333-64-9P 552333-65-0P
 (copolymer or polymer composition and polymer light-emitting device)
 IT 552333-61-6P, 2,7-Dibromo-9,9-diisopentylfluorene-2,7-dibromo-9,9-diisopentylfluorene-N,N'-bis(4-bromophenyl)-N,N'-(bis-4-n-butylphenyl)-1,4-phenylenediamine copolymer
 (copolymer or polymer composition and polymer light-emitting device)

emitting device)

L18 ANSWER 17 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:112577 HCPLUS

DOCUMENT NUMBER: 138:338918

TITLE: A novel emitting polymer with bipolar carrier transporting abilities

AUTHOR(S): Wang, G.; Zhang, J. P.; Wang, L. X.; Jing, X. B.; Wang, F. S.

CORPORATE SOURCE: State Key Laboratory of Polymer Physics and Chemistry, ChangChun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, 130022, Peop. Rep. China

SOURCE: Journal of Applied Polymer Science (2003), 88(1), 50-53

CODEN: JAPNAB; ISSN: 0021-8995

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A luminescent bipolar polymer containing 1,3,4-oxadiazole and triphenylamine has been synthesized. A smooth and dense thin film of polymer is easily obtained by spin coating its chloroform solution. This film exhibits a strong blue fluorescence under the irritation of UV light. The synthesized polymer possesses a high glass transition temperature (Tg) of 167°C. A single-layer electroluminescence (EL) device indium-tin oxide (ITO)/polymer/Mg:Ag emitted blue light with a turn-on voltage of 13 V.

IT 515158-89-1P

(preparation and characterization of novel emitting polymer with bipolar carrier transporting abilities)

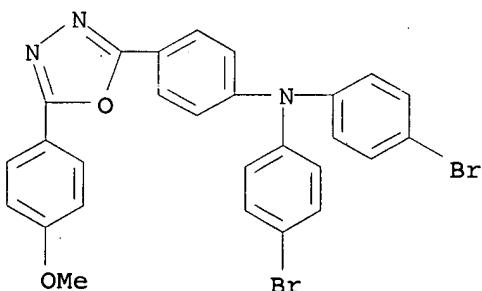
RN 515158-89-1 HCPLUS

CN Benzenamine, N,N-bis(4-bromophenyl)-4-[5-(4-methoxyphenyl)-1,3,4-oxadiazol-2-yl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 443770-33-0

CMF C27 H19 Br2 N3 O2



CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 73, 76

IT 515158-89-1P

(preparation and characterization of novel emitting polymer with bipolar carrier transporting abilities)

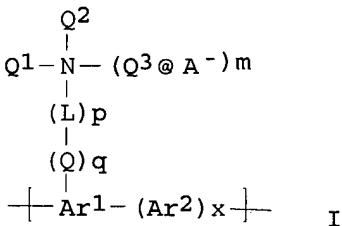
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE

IN THE RE FORMAT

L18 ANSWER 18 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:43043 HCPLUS
 DOCUMENT NUMBER: 138:107605
 TITLE: Electroluminescent polymers and use thereof in
 light-emitting devices
 INVENTOR(S): Pei, Qibing
 PATENT ASSIGNEE(S): SRI International, USA
 SOURCE: U.S. Pat. Appl. Publ., 26 pp., Cont.-in-part
 of U. S. Ser. No. 864,704.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003013843	A1	20030116	US 2002-153229	2002 0521
US 6800722	B2	20041005		
US 2002193551	A1	20021219	US 2001-864704	2001 0523
US 6723828	B2	20040420		
US 2005033015	A1	20050210	US 2004-932685	2004 0901
PRIORITY APPLN. INFO.:			US 2001-864704	A2 2001 0523
			US 2002-153229	A3 2002 0521

GI



AB The invention provides conjugated polymers that have good solubility and semicond., and that display high photoluminescent and electroluminescent efficiency. Representative polymers comprise I, wherein: Ar1 and Ar2 are independently selected from the group consisting of monocyclic, bicyclic and polycyclic arylene, heteroarylene, substituted arylene and substituted heteroarylene groups; L is alkylene, alkenylene, substituted alkylene,

substituted alkenylene, heteroalkylene, heteroalkenylene, substituted heteroalkylene, substituted heteroalkenylene, arylene, heteroarylene, substituted arylene, substituted heteroarylene, or a combination thereof; Q is a heteroatom; m is zero or 1; p is zero or 1, and q is zero or 1, with the proviso that when p is zero, then q is zero; x is zero or 1; Q1 and Q2 are independently selected from the group consisting of H, aryl, heteroaryl, substituted aryl, substituted heteroaryl, alkyl, substituted alkyl, heteroalkyl, and substituted heteroalkyl, and Q3 is selected from the group consisting of alkyl, substituted alkyl, heteroalkyl, and substituted heteroalkyl, with the proviso that when m is 1, Q1 and Q2 are other than H; and A- is a neg. charged counterion. Electroluminescent and other devices containing a polymer of the invention are also provided. 4,4'-Dibromo-2-diphenylamino-1,1'-biphenyl was prepared and polymerized in the presence of Zn and catalysts.

IT 476666-85-0P, 4,4'-Dibromo-2-diphenylamino-1,1'-biphenyl homopolymer 476666-87-2P, 4,4'-Dibromo-2-dioctylamino-1,1'-biphenyl-4,4'-dibromo-2-diphenylamino-1,1'-biphenyl copolymer 476666-94-1P, 4,4'-Dibromo-2-bis(4-methoxyphenyl)amino-1,1'-biphenyl homopolymer 485372-68-7P,

1,4-Dibromo-2-diphenylaminobenzene homopolymer (electroluminescent polymers and use thereof in light-emitting devices)

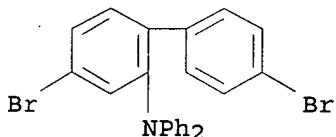
RN 476666-85-0 HCPLUS

CN [1,1'-Biphenyl]-2-amine, 4,4'-dibromo-N,N-diphenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 476666-79-2

CMF C24 H17 Br2 N



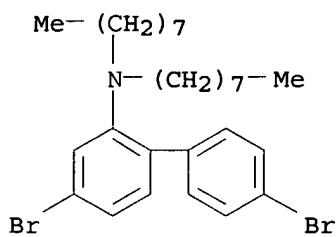
RN 476666-87-2 HCPLUS

CN [1,1'-Biphenyl]-2-amine, 4,4'-dibromo-N,N-dioctyl-, polymer with 4,4'-dibromo-N,N-diphenyl[1,1'-biphenyl]-2-amine (9CI) (CA INDEX NAME)

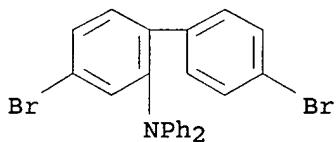
CM 1

CRN 476666-83-8

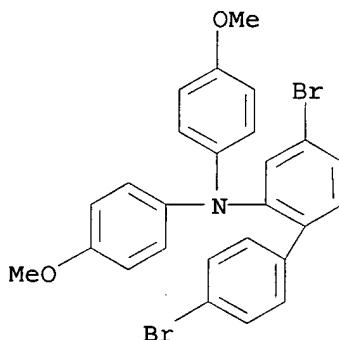
CMF C28 H41 Br2 N



CM 2

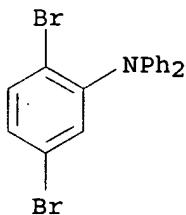
CRN 476666-79-2
CMF C24 H17 Br2 NRN 476666-94-1 HCPLUS
CN [1,1'-Biphenyl]-2-amine, 4,4'-dibromo-N,N-bis(4-methoxyphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 476666-81-6
CMF C26 H21 Br2 N O2RN 485372-68-7 HCPLUS
CN Benzenamine, 2,5-dibromo-N,N-diphenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 407636-81-1
CMF C18 H13 Br2 N



IC ICM C08G073-00

INCL 528422000

CC 37-3 (Plastics Manufacture and Processing)

IT 476666-85-0P, 4,4'-Dibromo-2-diphenylamino-1,1'-biphenyl homopolymer 476666-87-2P, 4,4'-Dibromo-2-dioctylamino-1,1'-biphenyl-4,4'-dibromo-2-diphenylamino-1,1'-biphenyl copolymer 476666-94-1P, 4,4'-Dibromo-2-bis(4-methoxyphenyl)amino-1,1'-biphenyl homopolymer 485372-68-7P, 1,4-Dibromo-2-diphenylaminobenzene homopolymer 485817-58-1P, Poly[(diphenylamino)-1,4-phenylene]
(electroluminescent polymers and use thereof in light-emitting devices)

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 19 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:906359 HCAPLUS

DOCUMENT NUMBER: 138:5032

TITLE: Electroluminescent polymers and use thereof in light-emitting devices

INVENTOR(S): Pei, Qibing

PATENT ASSIGNEE(S): Sri International, USA

SOURCE: PCT Int. Appl., 55 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

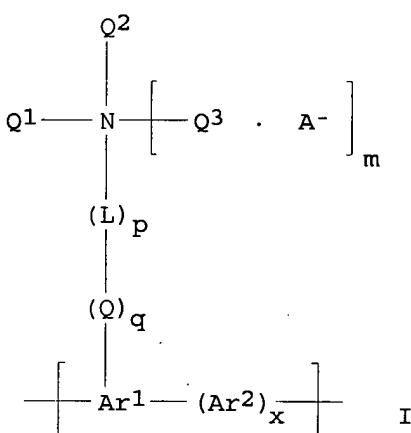
FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002094910	A1	20021128	WO 2002-US16180	2002 0522
WO 2002094910	B1	20030116		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
US 2002193551	A1	20021219	US 2001-864704	

2001
0523US 6723828 B2 20040420
EP 1401916 A1 20040331 EP 2002-7441672002
0522R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
JP 2004534872 T2 20041118 JP 2002-5923802002
0522PRIORITY APPLN. INFO.: US 2001-864704 A
2001
0523WO 2002-US16180 W
2002
0522

GI



AB The invention provides conjugated polymers that have good solubility and semicond., and that display high photoluminescent and electroluminescent efficiency. Representative polymers containing monomer units having the general structure of formula (I), wherein: Ar1 and Ar2 are independently selected from the group consisting of monocyclic, bicyclic and polycyclic arylene, heteroarylene, substituted arylene and substituted heteroarylene groups; L is alkylene, alkenylene, substituted alkylene, substituted alkenylene, heteroalkylene, heteroalkenylene, substituted heteroalkylene, substituted heteroalkenylene, arylene, heteroarylene, substituted arylene, substituted heteroarylene, or a combination thereof; Q is a heteroatom; m is zero or 1; p is zero or 1, and q is zero or 1, with the proviso that when p is zero, then q is zero; x is zero or 1; Q1 and Q2 are independently selected from the group consisting of H, aryl, heteroaryl, substituted aryl, substituted heteroaryl, alkyl, substituted alkyl, heteroalkyl, and substituted heteroalkyl, and Q3 is selected from the group consisting of alkyl, substituted alkyl, heteroalkyl, and substituted heteroalkyl, with the proviso that

when m is 1, Q1 and Q2 are other than H; and A- is a neg. charged counterion. Electroluminescent and other devices containing a polymer of the invention are also provided.

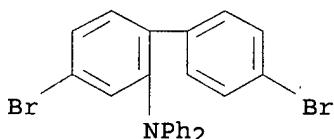
IT 476666-85-0DP, 4,4'-Dibromo-2-diphenylamino-1,1'-biphenyl homopolymer, p-tert-butylphenyl-terminated 476666-87-2P, 4,4'-Dibromo-2-diphenylamino-1,1'-biphenyl-4,4'-Dibromo-2-dioctylamino-1,1'-biphenyl copolymer 476666-94-1DP, 4,4'-Dibromo-2-bis(4-methoxyphenyl)amino-1,1'-biphenyl homopolymer, p-tert-butylphenyl-terminated (conjugated electroluminescent polymers, their blue light-emitting comps., and use thereof in light-emitting devices)

RN 476666-85-0 HCAPLUS

CN [1,1'-Biphenyl]-2-amine, 4,4'-dibromo-N,N-diphenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

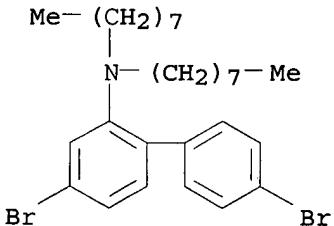
CRN 476666-79-2
CMF C24 H17 Br2 N



RN 476666-87-2 HCAPLUS
CN [1,1'-Biphenyl]-2-amine, 4,4'-dibromo-N,N-dioctyl-, polymer with 4,4'-dibromo-N,N-diphenyl[1,1'-biphenyl]-2-amine (9CI) (CA INDEX NAME)

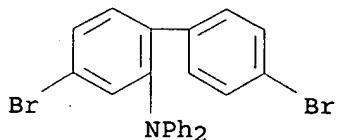
CM 1

CRN 476666-83-8
CMF C28 H41 Br2 N



CM 2

CRN 476666-79-2
CMF C24 H17 Br2 N



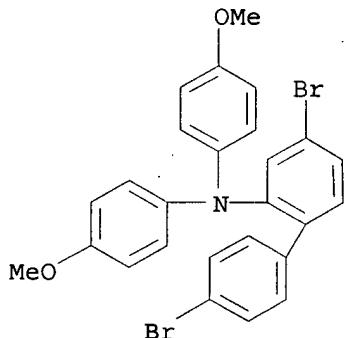
RN 476666-94-1 HCPLUS

CN [1,1'-Biphenyl]-2-amine, 4,4'-dibromo-N,N-bis(4-methoxyphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 476666-81-6

CMF C26 H21 Br2 N O2



IC ICM C08G073-00

CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 73, 76

IT 3972-65-4DP, 1-Bromo-4-tert-butylbenzene, reaction products with polyarylenes 476666-85-0DP, 4,4'-Dibromo-2-diphenylamino-1,1'-biphenyl homopolymer, p-tert-butylphenyl-terminated 476666-87-2P, 4,4'-Dibromo-2-diphenylamino-1,1'-biphenyl-4,4'-Dibromo-2-dioctylamino-1,1'-biphenyl copolymer 476666-91-8P, 4,4'-Dibromo-2-dioctylamino-1,1'-biphenyl homopolymer 476666-94-1DP, 4,4'-Dibromo-2-bis(4-methoxyphenyl)amino-1,1'-biphenyl homopolymer, p-tert-butylphenyl-terminated 477328-44-2P 477328-45-3P 477328-47-5P

(conjugated electroluminescent polymers, their blue light-emitting compns., and use thereof in light-emitting devices)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 20 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:545203 HCPLUS

DOCUMENT NUMBER: 137:248277

TITLE: Synthesis and fluorescence of polymeric triphenylamine obtained by oxidative-coupling polymerization

AUTHOR(S): Zhan, Caimao; Cheng, Zhangang; Zheng, Jinyun; Zhang, Wei; Xi, Yang; Qin, Jingui

CORPORATE SOURCE: Department of Chemistry, Wuhan University,

Wuhan, 430072, Peop. Rep. China

SOURCE: Journal of Applied Polymer Science (2002),
85(13), 2718-2724

CODEN: JAPNAB; ISSN: 0021-8995

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We prepared triphenylamine (TPA)-containing polymers by a direct oxidative-coupling method, which showed high thermostability, good solubility, high quantum efficiency, and blue light emission. The polymers are characterized by Fourier transform IR spectroscopy, ¹H-NMR, UV-visible spectroscopy, thermogravimetric anal., elemental anal., and fluorescence spectra. The homopolymeric TPA (PTPA) was fairly soluble in CCl₄ and toluene, with a quantum yield of 0.38 relative to Rhodamine B in toluene solution, and showed blue light emission in solid-state film. The TPA-stilbene copolymers were more soluble than the PTPA and showed violet to green light emission in solid-state film, depending on the TPA moiety contents, from which a pure blue light emission could be obtained. The emitting quantum efficiency of the copolymers measured in toluene solution was from 0.57 to 0.78 relative to Rhodamine B.

IT 314031-46-4, trans-Stilbene-triphenylamine copolymer
(preparation and fluorescence of polymeric triphenylamine obtained by oxidative-coupling polymerization)

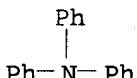
RN 314031-46-4 HCPLUS

CN Benzenamine, N,N-diphenyl-, polymer with 1,1'-(1E)-1,2-ethenediylbis[benzene] (9CI) (CA INDEX NAME)

CM 1

CRN 603-34-9

CMF C18 H15 N

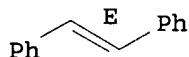


CM 2

CRN 103-30-0

CMF C14 H12

Double bond geometry as shown.



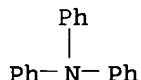
IT 25656-58-0P, Triphenylamine homopolymer
(preparation and fluorescence of polymeric triphenylamine obtained by oxidative-coupling polymerization)

RN 25656-58-0 HCPLUS

CN Benzenamine, N,N-diphenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 603-34-9
CMF C18 H15 N



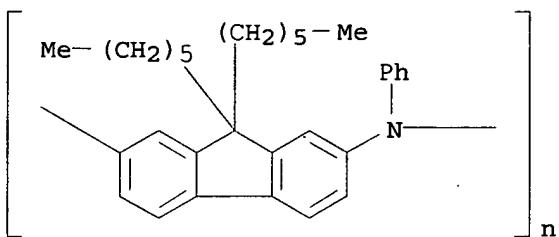
CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 38, 73
IT 314031-46-4, trans-Stilbene-triphenylamine copolymer
(preparation and fluorescence of polymeric triphenylamine
obtained by oxidative-coupling polymerization)
IT 25656-58-0P, Triphenylamine homopolymer
(preparation and fluorescence of polymeric triphenylamine
obtained by oxidative-coupling polymerization)
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L18 ANSWER 21 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:123757 HCPLUS
DOCUMENT NUMBER: 136:310466
TITLE: Synthesis of Novel Fluorene-Based
Poly(iminoarylene)s and Their Application to
Buffer Layer in Organic Light-Emitting Diodes
AUTHOR(S): Jung, Byung-Jun; Lee, Jeong-Ik; Chu, Hye Yong;
Do, Lee-Mi; Shim, Hong-Ku
CORPORATE SOURCE: Center for Advanced Functional Polymers,
Department of Chemistry and School of
Molecular Science (BK21), Korea Advanced
Institute of Science and Technology, Tae-jon,
305-701, S. Korea
SOURCE: Macromolecules (2002), 35(6), 2282-2287
CODEN: MAMOBX; ISSN: 0024-9297
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

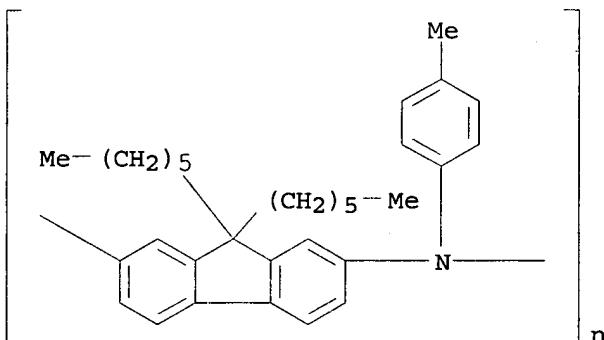
AB The fluorene-based poly(iminoarylene)s with triarylamine unit were
simply synthesized from palladium-catalyzed polycondensation of
2,7-dibromo-9,9-di-n-alkyllfluorene with primary amines such as
aniline and p-toluidine. The polymers with high mol. weight were
obtained and were thermally stable. The HOMO levels of the
polymers (.apprx.-5.1 eV) were close to the work function of ITO
(indium-tin oxide). Organic light-emitting diodes (OLEDs) of the
form ITO/polymer/TPD [N,N'-diphenyl-N,N'-bis(3-methylphenyl)-1,1'-
biphenyl-4,4'-diamine]/Alq3 [tris(8-quinolinolato)aluminum]/LiF/Al
showed lower turn-on voltage (VT = 2.2 V), the enhanced
efficiency, and the higher maximum luminance at the higher c.d.
(PFA1: 12 370 cd/m² at 427 mA/cm²) than those of the device
without polymer (VT = 3.6 V, 5790 cd/m² at 233 mA/cm²). It is
expected that these polymers can be used as a buffer layer in
OLEDs.

IT 410098-38-3P 410098-40-7P 410098-42-9P
(synthesis of novel fluorene-based poly(iminoarylene)s and
application to buffer layer in organic light-
emitting diodes)
RN 410098-38-3 HCPLUS
CN Poly[(phenylimino)(9,9-dihexyl-9H-fluorene-2,7-diyl)] (9CI) (CA)

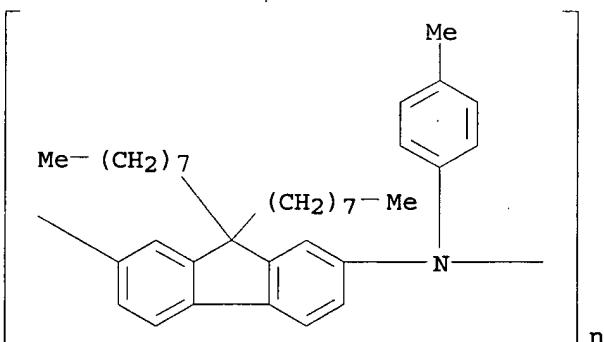
INDEX NAME)



RN 410098-40-7 HCAPLUS

CN Poly[[(4-methylphenyl)imino] (9,9-dihexyl-9H-fluorene-2,7-diyl)]
(9CI) (CA INDEX NAME)

RN 410098-42-9 HCAPLUS

CN Poly[[(4-methylphenyl)imino] (9,9-dioctyl-9H-fluorene-2,7-diyl)]
(9CI) (CA INDEX NAME)

CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 35, 74

IT 410098-37-2P, Aniline-2,7-dibromo-9,9-dihexylfluorene copolymer

410098-38-3P 410098-39-4P, 2,7-Dibromo-9,9-

dihexylfluorene-p-toluidine copolymer 410098-40-7P

410098-41-8P, 2,7-Dibromo-9,9-dioctylfluorene-p-toluidine
copolymer 410098-42-9P(synthesis of novel fluorene-based poly(iminoarylene)s and
application to buffer layer in organic light-

emitting diodes)

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 22 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2001:832340 HCPLUS
 DOCUMENT NUMBER: 136:103097
 TITLE: Fluorene-based light-emitting polymers
 AUTHOR(S): Yu, Wang-Lin; Liu, Bin; Pei, Jian; Zeng, Gang; Huang, Wei
 CORPORATE SOURCE: Institute of Materials Research and Engineering, Singapore, 117602, Singapore
 SOURCE: Chinese Journal of Polymer Science (2001), 19(6), 603-613
 CODEN: CJPSEG; ISSN: 0256-7679
 PUBLISHER: Springer-Verlag
 DOCUMENT TYPE: Journal
 LANGUAGE: English

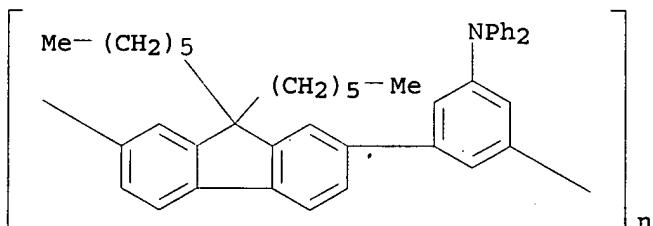
AB Several series of fluorene-based light-emitting polymers with the emphasis on achieving efficient and stable blue light emission are reported. Spiro-functionalization may narrow the emission spectra (with smaller tail at longer wavelengths) of fluorene homopolymers to provide purer blue emission. The thermal spectral stability of the polymers could also be improved because of the elevation of the glass transition temperature caused by the spiro-functionalization. However, the excimer emission in fluorene homopolymers is not suppressed by the spiro-functionalization. Alternate copolymers of 9,9-dihexylfluorene and substituted phenylenes may emit efficient blue light both in solution and in film. The optical properties are dependent on the substitution on the phenylene ring. The alkoxy-substituted polymers displayed efficient PL and EL and good thermal spectral stability. The HOMO and LUMO energy levels of the polymers based on the backbone structure could be tuned in a wide range by attaching different functional groups on the phenylene ring. By attaching europium(III) complex at the ends of the side chains in the alternate copolymers, we have demonstrated a new approach to achieving red emission with a very narrow spectrum. The copolymers of 9,9-dihexylfluorene and thiophene and bithiophene with different substitutions were also synthesized to study the effect of substitution and regioregularity on the optical and other phys. properties of the polymers.

IT 389635-73-8

(fluorene-based polymers for light-emitting diodes)

RN 389635-73-8 HCPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl) [5-(diphenylamino)-1,3-phenylene]] (9CI) (CA INDEX NAME)



CC 37-5 (Plastics Manufacture and Processing)
 Section cross-reference(s): 73
 IT 120-46-7D, Europium complexes, with bipyridyl- and fluorene-containing polyarylenes 326-91-0D, Europium complexes, with bipyridyl- and fluorene-containing polyarylenes 7440-53-1D, Europium, reaction products with fluorene-based polymers and diones 203927-85-9 250597-29-6D, polyarylenes with bipyridylalkylmethoxydibromobenzene, complexes with europium and diketone ligands 250597-31-0 297153-11-8 297153-12-9 297153-14-1 297153-15-2 297153-16-3 389635-73-8
 (fluorene-based polymers for light-emitting diodes)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 23 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2001:400162 HCAPLUS
 DOCUMENT NUMBER: 136:151769
 TITLE: Synthesis of TPD-containing polymers for use as light-emitting materials in electroluminescent and laser devices
 AUTHOR(S): Hoerhold, Hans-Heinrich; Tillmann, Hartwig; Raabe, Dietrich; Helbig, Manfred; Elflein, Wilhelm; Braeuer, Andreas H.; Holzer, Wolfgang; Penzkofer, Alfons
 CORPORATE SOURCE: INNOVENT Technologieentwicklung e. V., Jena, 07745, Germany
 SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2001), 4105(Organic Light-Emitting Materials and Devices IV), 431-442
 PUBLISHER: SPIE-The International Society for Optical Engineering
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The synthesis of 2 families of elec. active and highly luminescent TPD-based copolymers is reported. In one class, (1) the Horner-olefination between TPD-dialdehydes and xylylene bisphosphonates was used to prepare red and green emitting conjugated TPD-PPV copolymers. Here the TPD (triphenylamine dimer) moieties are bridged through alkoxy- substituted p-phenylene vinylene segments. In the second class, (2) blue emitting, nonconjugated TPD-xylylene copolymers (Poly-TPD-DPX) were synthesized by an electrophilic aralkylation using diphenylxylylene diol and TPD as the monomers. All these TPD-copolymers constitute amorphous electrooptical materials possessing remarkably high glass transition temps. (Tg 110-240°). Here the authors demonstrate strong lasing in the red, green and blue spectral region employing thin layers (.apprx.100 nm) of these solution processable polymeric materials. In waveguiding neat films traveling-wave lasing (amplified spontaneous emission, ASE) is achieved upon picosecond pulse excitation at 347 nm. Pump energy d. thresholds $\geq 3 \mu$ J/cm² and ASE-line halfwidths .apprx.10 nm were observed Comparable to the typical redox behavior of free TPD mol. the novel TPD-based polymers exhibit fully reversible electron transfer at low potential (EOx .apprx.0.65 V), which is favorable for hole

injection and stable charge transport in the semiconducting organic materials. In addition, these high-TG polymers can act as the electro-active materials in LEDs, photovoltaic cells and photorefractive devices. The waveguiding properties of Poly-TPD-DPX were determined in planar and strip waveguides to be 12 dB/cm at 640 nm, and 2 dB/cm at 1550 nm.

IT 350704-93-7P, N,N'-Bis(4-formylphenyl)-N,N'-bis(4-methylphenyl)benzidine-2,5-dimethoxyterephthalaldehyde-2-Methoxy-5-(2-ethylhexyloxy)-1,4-xylylenebis(diethylphosphonate) copolymer

391257-47-9P 391257-48-0P 391257-49-1P

391257-51-5P, 1,4-Bis(phenylhydroxymethyl)benzene-N,N'-bis(4-methylphenyl)-N,N'-diphenylbenzidine copolymer

391257-54-8P

(synthesis of aromatic polymers for use as light-emitting materials in electroluminescent and laser devices)

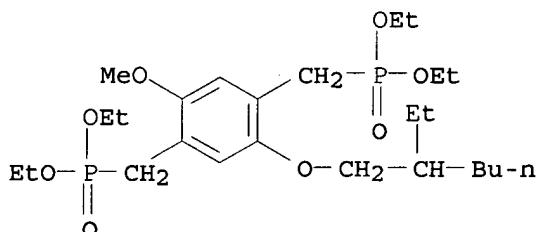
RN 350704-93-7 HCPLUS

CN Phosphonic acid, [[2-[(2-ethylhexyl)oxy]-5-methoxy-1,4-phenylene]bis(methylene)]bis-, tetraethyl ester, polymer with 4,4'-[[1,1'-biphenyl]-4,4'-diyl]bis[(4-methylphenyl)imino]]bis[benzaldehyde] and 2,5-dimethoxy-1,4-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 181307-48-2

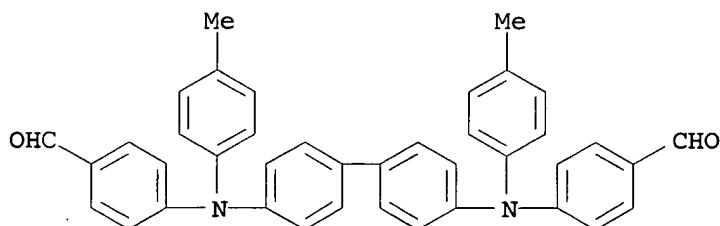
CMF C25 H46 O8 P2



CM 2

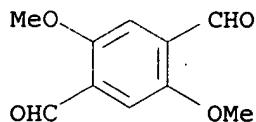
CRN 181064-88-0

CMF C40 H32 N2 O2



CM 3

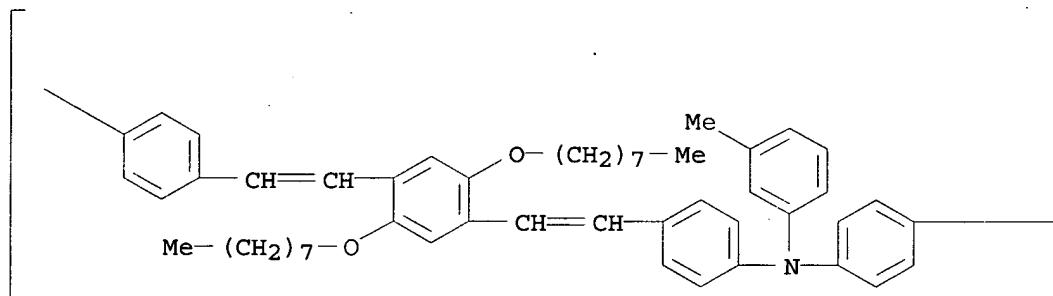
CRN 7310-97-6
CMF C10 H10 04



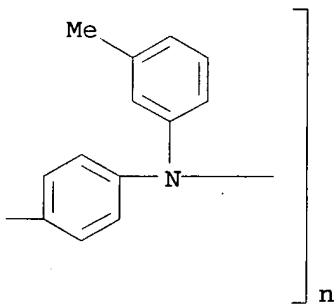
RN 391257-47-9 HCAPLUS

CN 55125-47-9 ACARLOS
CN Poly[[(3-methylphenyl)imino][1,1'-biphenyl]-4,4'-diyl[(3-methylphenyl)imino]-1,4-phenylene-1,2-ethenediyl[2,5-bis(octyloxy)-1,4-phenylene]-1,2-ethenediyl-1,4-phenylene] (9CI) (CA INDEX NAME)

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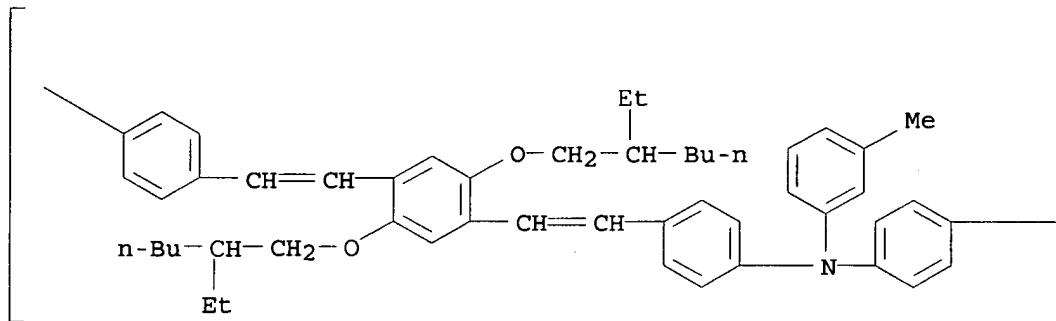
PAGE 1-B



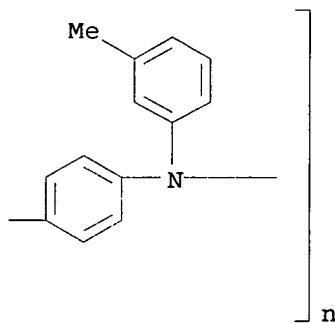
RN 391257-48-0 HCAPLUS

CN Poly[[(3-methylphenyl)imino][1,1'-biphenyl]-4,4'-diyl][(3-methylphenyl)imino]-1,4-phenylene-1,2-ethenediyl[2,5-bis[(2-ethylhexyl)oxy]-1,4-phenylene]-1,2-ethenediyl-1,4-phenylene] (9CI)
(CA INDEX NAME)

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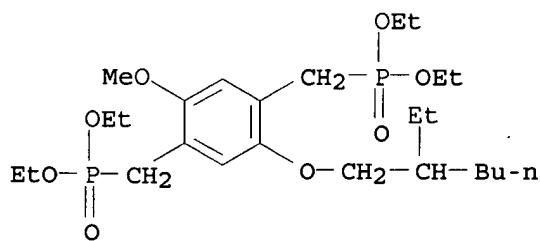
RN 391257-49-1 HCPLUS

CN Phosphonic acid, [[2-[(2-ethylhexyl)oxy]-5-methoxy-1,4-phenylene]bis(methylene)]bis-, tetraethyl ester, polymer with 4,4'-[[1,1'-biphenyl]-4,4'-diylbisis[(4-methylphenyl)imino]]bis[benzaldehyde] (9CI) (CA INDEX NAME)

CM 1

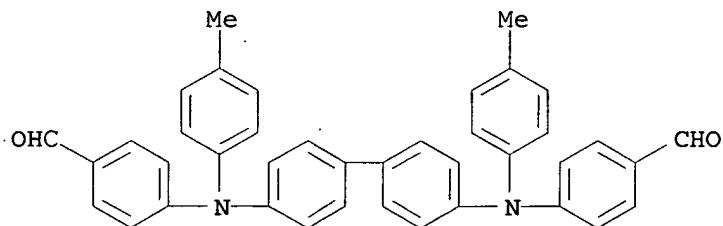
CRN 181307-48-2

CMF C25 H46 O8 P2



CM 2

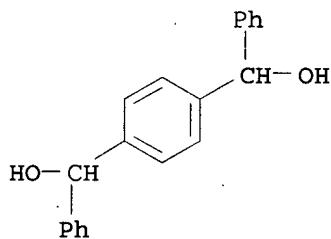
CRN 181064-88-0
 CMF C40 H32 N2 O2



RN 391257-51-5 HCPLUS
 CN 1,4-Benzenedimethanol, α, α' -diphenyl-, polymer with
 N,N'-bis(4-methylphenyl)-N,N'-diphenyl[1,1'-biphenyl]-4,4'-diamine
 (9CI) (CA INDEX NAME)

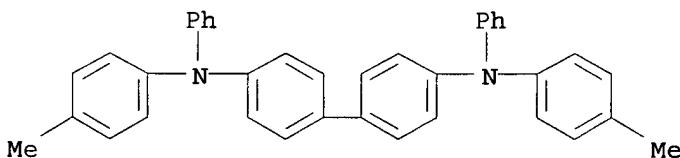
CM 1

CRN 32449-03-9
 CMF C20 H18 O2



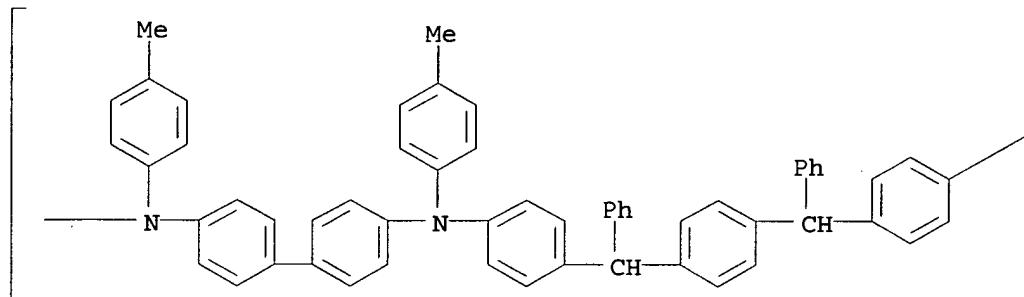
CM 2

CRN 20441-06-9
 CMF C38 H32 N2



RN 391257-54-8 HCPLUS
 CN Poly[[(4-methylphenyl)imino][1,1'-biphenyl]-4,4'-diyl[(4-methylphenyl)imino]-1,4-phenylene(phenylmethylene)-1,4-phenylene(phenylmethylene)-1,4-phenylene] (9CI) (CA INDEX NAME)

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n

CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 73

IT 350704-93-7P, N,N'-Bis(4-formylphenyl)-N,N'-bis(4-methylphenyl)benzidine-2,5-dimethoxyterephthalaldehyde-2-Methoxy-5-(2-ethylhexyloxy)-1,4-xylylenebis(diethylphosphonate) copolymer
 391257-47-9P 391257-48-0P 391257-49-1P
 391257-51-5P, 1,4-Bis(phenylhydroxymethyl)benzene-N,N'-bis(4-methylphenyl)-N,N'-diphenylbenzidine copolymer
 391257-52-6P 391257-54-8P
 (synthesis of aromatic polymers for use as light-emitting materials in electroluminescent and laser devices)

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 24 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:400128 HCPLUS

DOCUMENT NUMBER: 136:103121

TITLE: Organic electroluminescent devices with polymer buffer layer

AUTHOR(S): Sato, Yoshiharu; Ogata, Tomoyuki; Kido, Junji
 CORPORATE SOURCE: Yokohama Research Center, Mitsubishi Chemical Corp., Kamoshida, Aoba-ku, Yokohama, 227-8502, Japan

SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2001), 4105(Organic Light-Emitting Materials and Devices IV),

134-142

CODEN: PSISDG; ISSN: 0277-786X

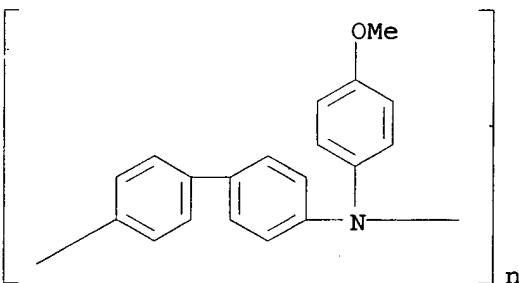
PUBLISHER: SPIE-The International Society for Optical
EngineeringDOCUMENT TYPE: Journal
LANGUAGE: English

AB A new type of polymers poly(arylene ether sulfone)-containing and poly(arylene ether ketone)- containing tetraphenyl-benzidine , and also polymers with directly coupled tri-Ph amine units have been developed. When these polymers are mixed with strong acceptor , they indicated higher conductivity and facilitated hole injection from ITO to the hole transport layer. Spin-coating of such polymer from an organic solution on ITO was found to improve the surface roughness of ITO, resulting in reduced defects that cause elec. short circuit between ITO and cathode. These buffer materials lowered the operation voltage and improved the thermal stability of the device. After storage of 1,000 h at 85 °C, the device with polymer buffer showed no degradation in luminance and small increase of operation voltage. In comparison with CuPc buffer, it is clear that the doped polymer is superior in terms of both efficiency and thermal stability.

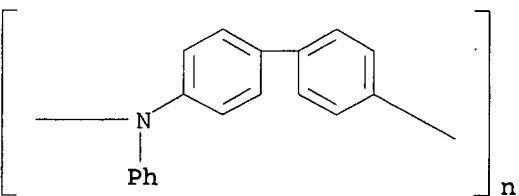
IT 106986-82-7P 107001-70-7P 173394-17-7P
173394-18-8P 355008-24-1P 389104-44-3P
389104-45-4P 389104-47-6P 389104-48-7P

(organic electroluminescent devices with polymer buffer
layer)

RN 106986-82-7 HCAPLUS

CN Poly[[(4-methoxyphenyl)imino][1,1'-biphenyl]-4,4'-diyl] (9CI) (CA
INDEX NAME)

RN 107001-70-7 HCAPLUS

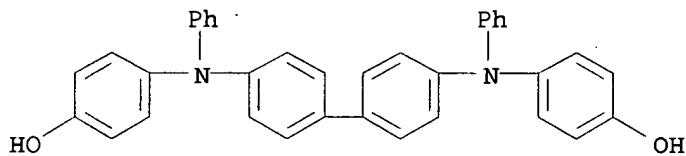
CN Poly[(phenylimino)[1,1'-biphenyl]-4,4'-diyl] (9CI) (CA INDEX
NAME)

RN 173394-17-7 HCAPLUS

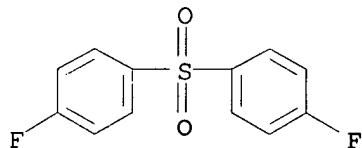
CN Phenol, 4,4'-{[1,1'-biphenyl]-4,4'-diylbis(phenylimino)}bis-,
polymer with 1,1'-sulfonylbis[4-fluorobenzene] (9CI) (CA INDEX)

NAME)

CM 1

CRN 121333-95-7
CMF C36 H28 N2 O2

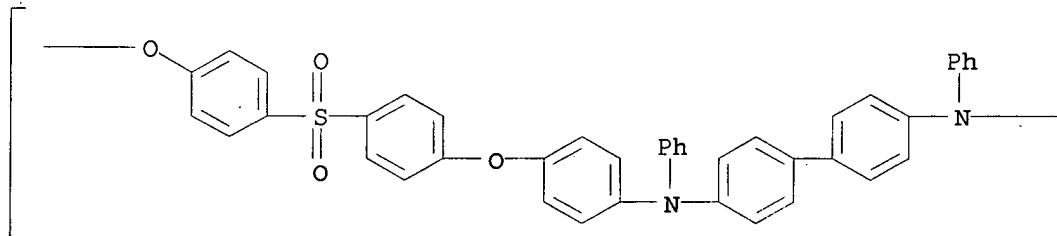
CM 2

CRN 383-29-9
CMF C12 H8 F2 O2 S

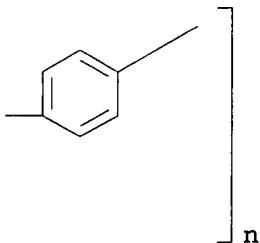
RN 173394-18-8 HCPLUS

CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(phenylimino)[1,1'-biphenyl]-4,4'-diyl(phenylimino)-1,4-phenylene] (9CI) (CA INDEX NAME)

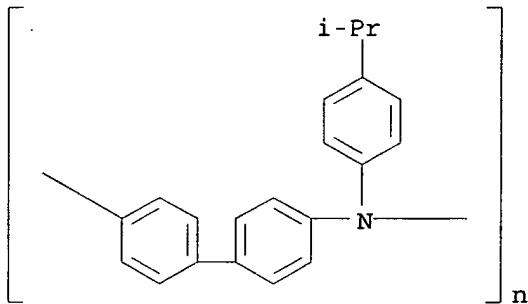
PAGE 1-A



PAGE 1-B



RN 355008-24-1 HCPLUS

CN Poly[[[4-(1-methylethyl)phenyl]imino][1,1'-biphenyl]-4,4'-diyl]
(9CI) (CA INDEX NAME)

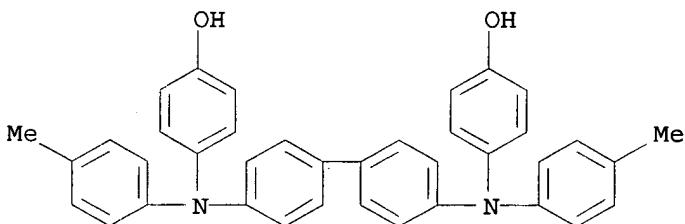
RN 389104-44-3 HCPLUS

CN Phenol, 4,4'-[[1,1'-biphenyl]-4,4'-diyl]bis[(4-methylphenyl)imino]bis-, polymer with 1,1'-sulfonylbis[4-fluorobenzene] (9CI) (CA INDEX NAME)

CM 1

CRN 178689-97-9

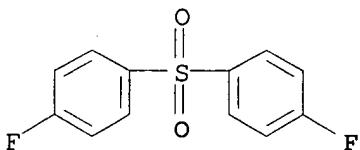
CMF C38 H32 N2 O2



CM 2

CRN 383-29-9

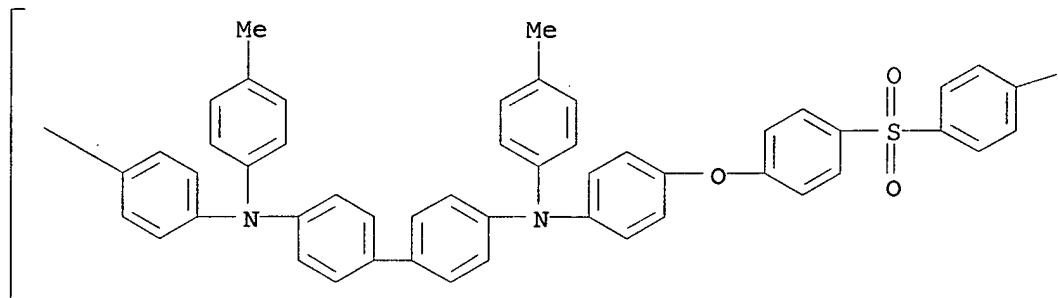
CMF C12 H8 F2 O2 S



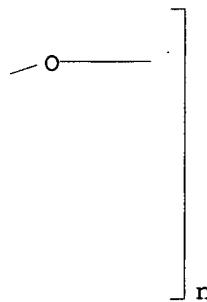
RN 389104-45-4 HCPLUS

CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene[(4-methylphenyl)imino][1,1'-biphenyl]-4,4'-diyl[(4-methylphenyl)imino]-1,4-phenylene] (9CI) (CA INDEX NAME)

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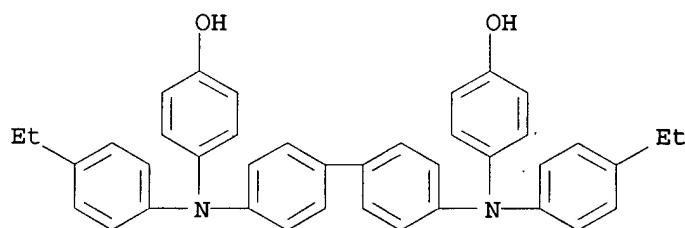
RN 389104-47-6 HCAPLUS

CN Methanone, bis(4-fluorophenyl)-, polymer with 4,4'-[1,1'-biphenyl]-4,4'-diylbis[(4-ethylphenyl)imino]bis[phenol] (9CI)
(CA INDEX NAME)

CM 1

CRN 389104-46-5

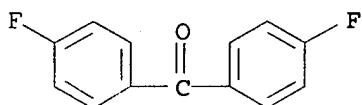
CMF C40 H36 N2 O2



CM 2

CRN 345-92-6

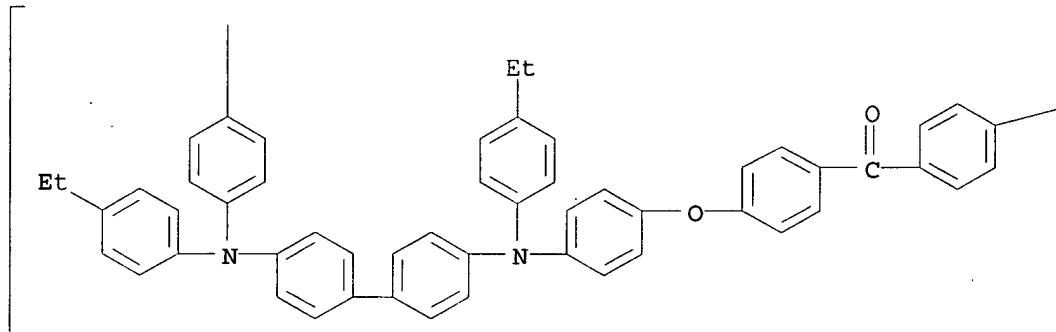
CMF C13 H8 F2 O



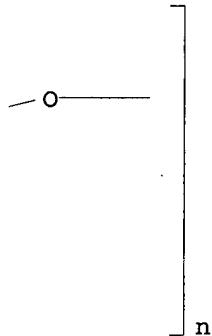
RN 389104-48-7 HCPLUS

CN Poly[oxy-1,4-phenylene carbonyl-1,4-phenyleneoxy-1,4-phenylene[(4-ethylphenyl)imino][1,1'-biphenyl]-4,4'-diyl[(4-ethylphenyl)imino]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



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CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 73, 76IT 106986-82-7P 107001-70-7P 173394-17-7P
173394-18-8P 355008-21-8P 355008-22-9P 355008-23-0P
355008-24-1P 389104-44-3P 389104-45-4P
389104-47-6P 389104-48-7P(organic electroluminescent devices with polymer buffer
layer)REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L18 ANSWER 25 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2000:685089 HCAPLUS
 DOCUMENT NUMBER: 133:350896
 TITLE: Synthesis of new hole transport polymers based on N,N'-diphenyl-N,N'-bis(4-methylphenyl)-1,4-phenylenediamine
 AUTHOR(S): Wang, Xiaoqing; Chen, Zhijian; Ogino, Kenji;
 Sato, Hisaya; Miyata, Seizo; Tan, Huiming
 CORPORATE SOURCE: Faculty of Technology, Tokyo University of Agriculture and Technology, Tokyo, 184-8588, Japan
 SOURCE: Polymer Journal (Tokyo) (2000), 32(9), 778-783
 CODEN: POLJB8; ISSN: 0032-3896
 PUBLISHER: Society of Polymer Science, Japan
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB New hole transport polymers were prepared by polyaddn. of N,N'-diphenyl-N,N'-bis(4-methylphenyl)-1,4-phenylenediamine with divinyl or diisopropenylbenzene and were characterized by 1H NMR, DSC, UV absorption spectra and cyclic voltammetry. These polymers exhibit high glass transition temps. and low oxidation potentials. Two-layer electroluminescent (EL) devices, in which the polymers were spin cast on ITO anode as the hole transport layer and aluminum tris(8-hydroxyquinoline) (Alq) was used as the emitting layer, gave a high brightness of above 10000 cd m⁻² with an operating voltage of less than 15 V.

IT 306734-13-4P 306734-14-5P
 (preparation of hole transport polymers based on diphenylbis(methylphenyl)phenylenediamine and electroluminescent devices)

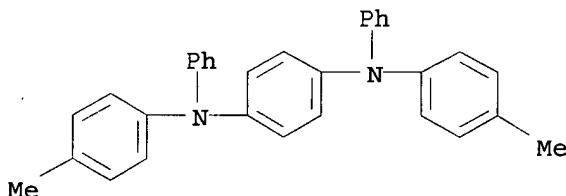
RN 306734-13-4 HCAPLUS

CN 1,4-Benzenediamine, N,N'-bis(4-methylphenyl)-N,N'-diphenyl-, polymer with 1,4-diethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 138171-14-9

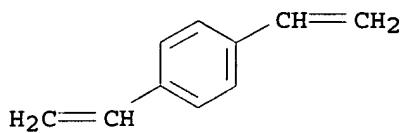
CMF C32 H28 N2



CM 2

CRN 105-06-6

CMF C10 H10



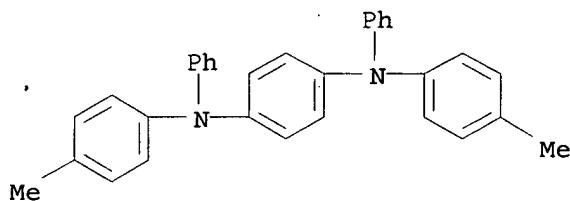
RN 306734-14-5 HCPLUS

CN 1,4-Benzenediamine, N,N'-bis(4-methylphenyl)-N,N'-diphenyl-,
polymer with 1,4-bis(1-methylethylene)benzene (9CI) (CA INDEX
NAME)

CM 1

CRN 138171-14-9

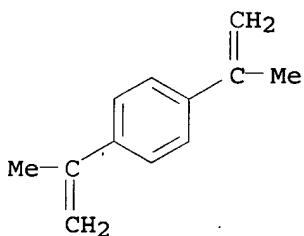
CMF C32 H28 N2



CM 2

CRN 1605-18-1

CMF C12 H14



CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 38, 73

IT 306734-13-4P 306734-14-5P

(preparation of hole transport polymers based on
diphenylbis(methylphenyl)phenylenediamine and
electroluminescent devices)REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L18 ANSWER 26 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:346335 HCPLUS

DOCUMENT NUMBER: 133:105868

TITLE: Polyquinolines: multifunctional polymers for

AUTHOR(S): Jen, Alex K.-Y.; Ma, Hong
 CORPORATE SOURCE: Department of Chemistry, Northeastern University, Boston, MA, 02115, USA
 SOURCE: Materials Research Society Symposium Proceedings (2000), 558(Flat-Panel Displays and Sensors--Principles, Materials and Processes), 469-480
 CODEN: MRSPDH; ISSN: 0272-9172
 PUBLISHER: Materials Research Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB A versatile, and generally applicable modular approach for making second-order nonlinear optical (NLO) side-chain aromatic polyquinolines has been developed. This approach emphasizes the ease of incorporating NLO chromophores onto the pendent Ph moieties of parent polyquinolines at the final stage via mild Mitsunobu reaction. This method provides the synthesis of polyquinolines with a broad variation of the polymer backbones and great flexibility in the selection of NLO chromophores. These side-chain NLO polyquinolines demonstrate high electro-optic (E-O) activity (up to 35 pm/V at 830 nm and 22 pm/V at 1300 nm, resp.) and a good combination of thermal, optical, elec. and mech. properties. Comparatively, two new electroluminescent (EL) polyquinolines have been prepared via the Friedlander condensation and nucleophilic reaction. The resulting polymers contain a bipolar property with both an efficient hole-transporting moiety, tetraphenyldiaminobiphenyl (TPD), and an electron affinitive light-emitting moiety, bis-quinoline. In addition, they possess high thermal stability, excellent electrochem. reversibility, good thin film-forming ability, and bright light-emitting property. Elec. characterization of two-layer diode devices based on the configurations of ITO/CuPc/TPD-PQ or TPD-PQE/Al showed excellent electroluminescence performance (a rectification ratio greater than 105 and a low turn-on voltage of less than 4 V).

IT 213814-56-3P 213814-63-2P 213814-67-6P

213814-71-2P
 (preparation and characterization and applications of multifunctional polyquinolines for electrooptic and light-emitting devices)

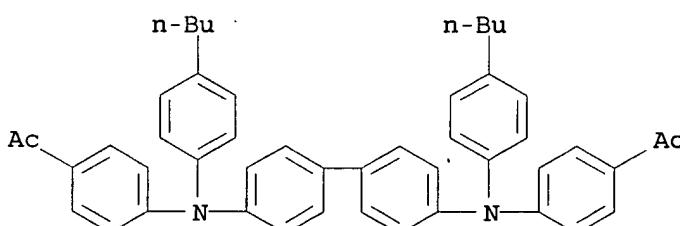
RN 213814-56-3 HCPLUS

CN Methanone, (4,4'-diamino[1,1'-biphenyl]-3,3'-diyl)bis[phenyl-, polymer with [[1,1'-biphenyl]-4,4'-diylbis[[4-(4-butylphenyl)imino]-4,1-phenylene]]bis[methylmethanone] (9CI) (CA INDEX NAME)

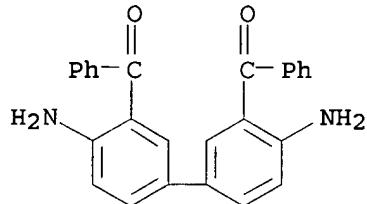
CM 1

CRN 213814-55-2

CMF C48 H48 N2 O2

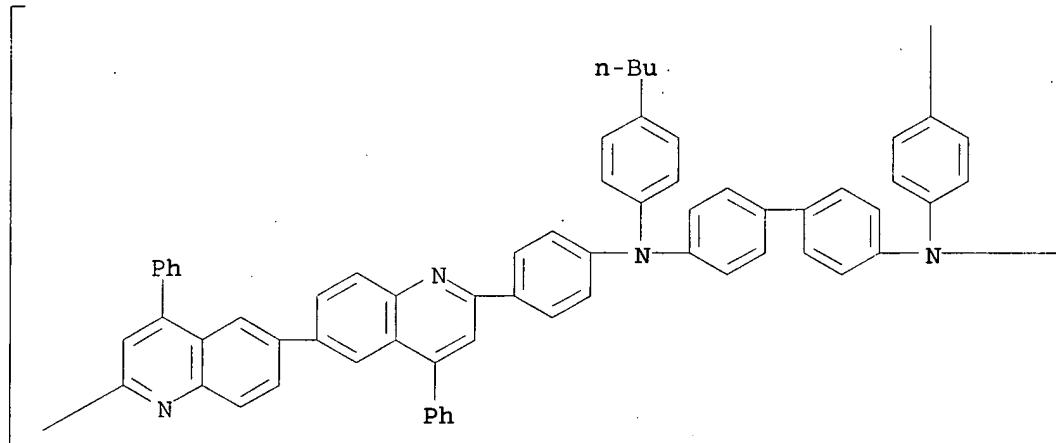


CM 2

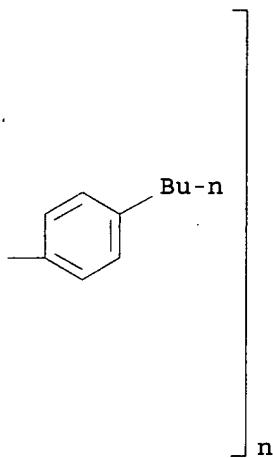
CRN 71713-10-5
CMF C26 H20 N2 O2

RN 213814-63-2 HCAPLUS
 CN Poly[(4,4'-diphenyl-6,6'-biquinoline-2,2'-diyl)-1,4-phenylene[(4-butylphenyl)imino][1,1'-biphenyl]-4,4'-diyl[(4-butylphenyl)imino]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



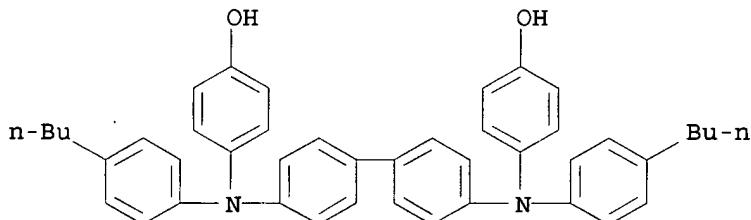
RN 213814-67-6 HCAPLUS

CN Phenol, 4,4'-[[1,1'-biphenyl]-4,4'-diylbis[(4-butylphenyl)imino]]bis-, polymer with 2,2'-bis(4-fluorophenyl)-4,4'-diphenyl-6,6'-biquinoline (9CI) (CA INDEX NAME)

CM 1

CRN 213814-66-5

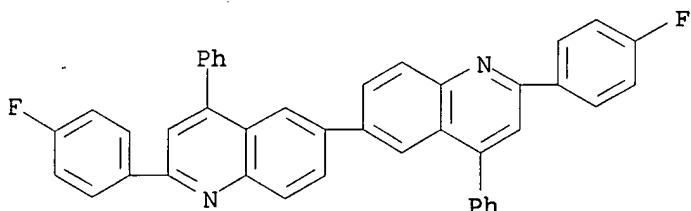
CMF C44 H44 N2 O2



CM 2

CRN 180268-07-9

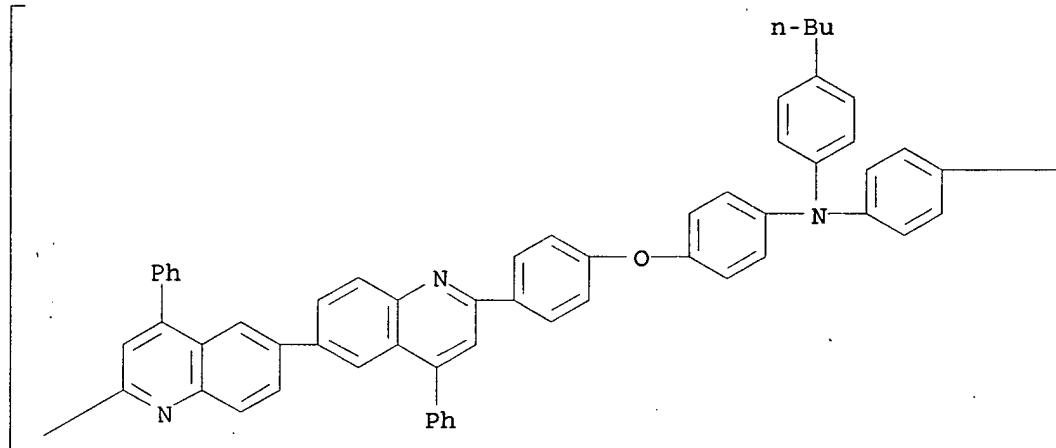
CMF C42 H26 F2 N2



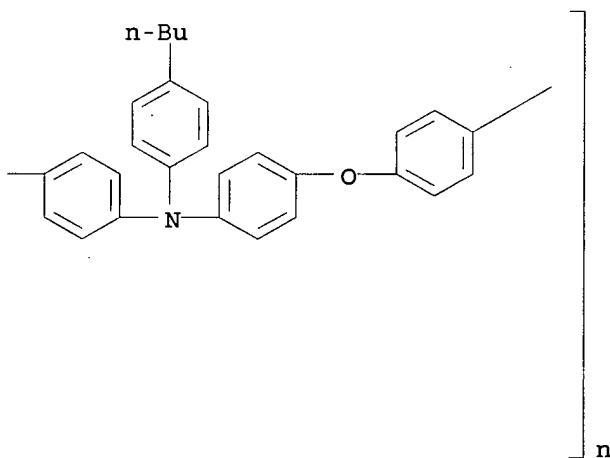
RN 213814-71-2 HCAPLUS

CN Poly[(4,4'-diphenyl-6,6'-biquinoline-2,2'-diyl)-1,4-phenyleneoxy-1,4-phenylene[(4-butylphenyl)imino][1,1'-biphenyl]-4,4'-diyl[(4-butylphenyl)imino]-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)

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PAGE 1-B



CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 73

IT 208345-48-6DP, polyquinoline ether derivs. 208345-49-7DP,
polyquinoline ether derivs. 213814-56-3P
213814-63-2P 213814-67-6P 213814-71-2P
244023-17-4DP, polyquinoline ether derivs. 244023-18-5DP,
polyquinoline ether derivs. 244023-19-6DP, polyquinoline ether
derivs. 244023-20-9DP, polyquinoline ether derivs.
244023-21-0DP, polyquinoline ether derivs.

(preparation and characterization and applications of
multifunctional polyquinolines for electrooptic and

light-emitting devices)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 27 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2000:315678 HCPLUS
 DOCUMENT NUMBER: 133:44159
 TITLE: Triarylamine-Containing
 Poly(perfluorocyclobutane) as
 Hole-Transporting Material for Polymer
 Light-Emitting Diodes
 AUTHOR(S): Liu, Sen; Jiang, Xuezhong; Ma, Hong; Liu,
 Michelle S.; Jen, Alex K.-Y.
 CORPORATE SOURCE: Department of Materials Science and
 Engineering, University of Washington, Seattl,
 WA, 98195-2120, USA
 SOURCE: Macromolecules (2000), 33(10), 3514-3517
 CODEN: MAMOBX; ISSN: 0024-9297
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The synthesis and characterization is reported of a series of highly efficient hole-transporting polymers with triphenylamine or N,N'-bis(4-butylphenyl)-N,N'-diphenyl-1,1'-diphenyl-4,4'-diamine covalently attached, as side chain, on the perfluorocyclobutane backbone. The se polymers were prepared by in situ curing-polymerization of bis(p-trifluorovinyloxyphenyl)silanes with corresponding hydroxymethylphenylamines at 225° for 1h under N2. The polymers showed high thermal stability determined by TGA and good reversibility determined by cyclic voltammetry. The polymer showing highest concentration of the hole-transporting moiety was used to fabricate a light-emitting diode utilizing a binaphthyl-containing polyfluorene as an emissive layer.

IT 269078-58-2P 269078-60-6P 275794-04-2P

275794-06-4P
 (triarylamine-containing poly(perfluorocyclobutane) as
 hole-transporting material for polymer light-
 emitting diodes)

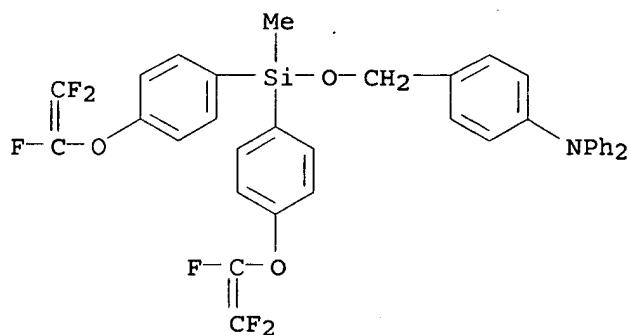
RN 269078-58-2 HCPLUS

CN Benzenamine, 4-[[[methylbis[4-[(trifluoroethenyl)oxy]phenyl]silyl]oxy]methyl]-N,N-diphenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 269078-57-1

CMF C36 H27 F6 N O3 Si



RN 269078-60-6 HCPLUS

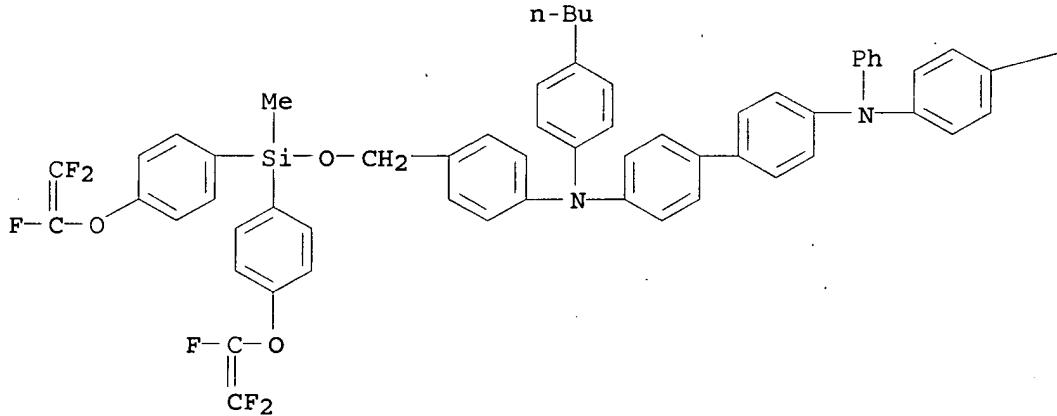
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-butylphenyl)-N-[4-[[[methylbis[4-[(trifluoroethenyl)oxy]phenyl]silyl]oxy]methyl]phenyl]-N'-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 269078-59-3

CMF C62 H56 F6 N2 O3 Si

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—Bu-n

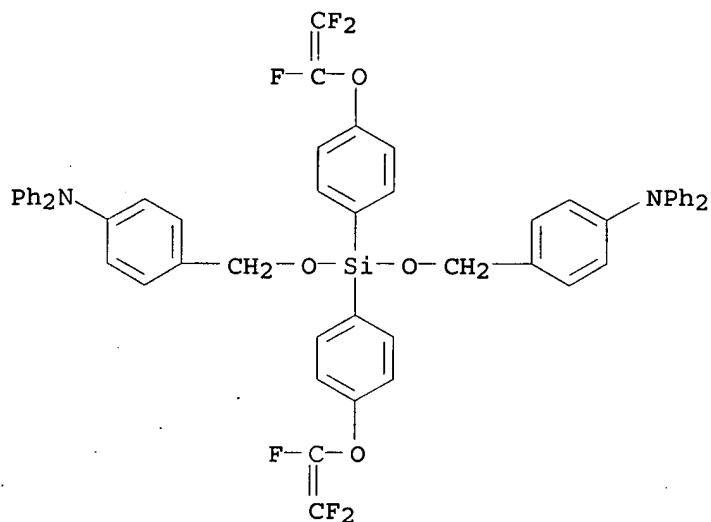
RN 275794-04-2 HCPLUS

CN Benzenamine, 4,4'-[[[bis[4-[(trifluoroethenyl)oxy]phenyl]silylene]bis(oxymethylene)]bis[N,N-diphenyl-, homopolymer (9CI) (CA INDEX NAME)]

CM 1

CRN 275794-00-8

CMF C54 H40 F6 N2 O4 Si



RN 275794-06-4 HCPLUS

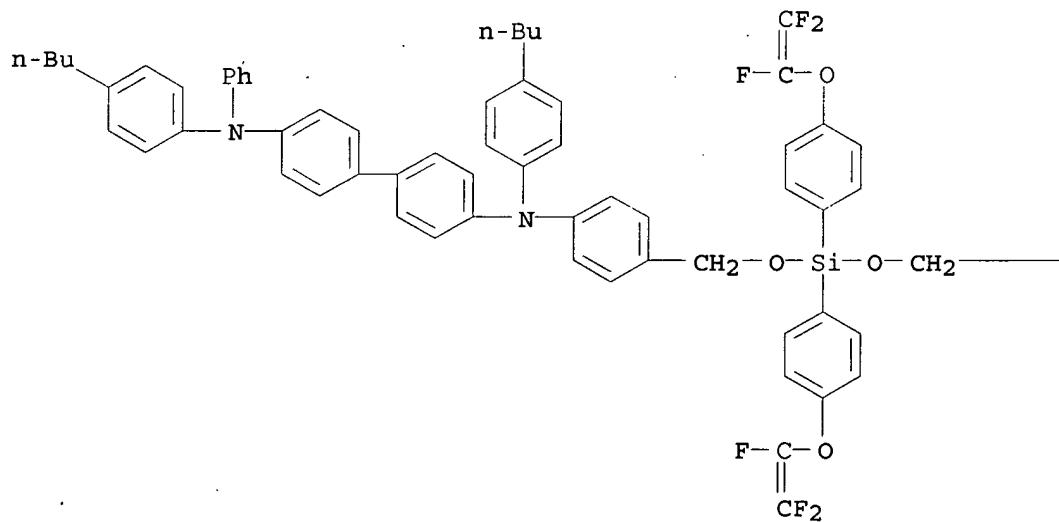
CN [1,1'-Biphenyl]-4,4'-diamine, N,N''-[[bis[4-
[(trifluoroethenyl)oxy]phenyl]silylene]bis(oxymethylene-4,1-
phenylene)]bis[N,N'-bis(4-butylphenyl)-N'-phenyl-, homopolymer
(9CI) (CA INDEX NAME)

CM 1

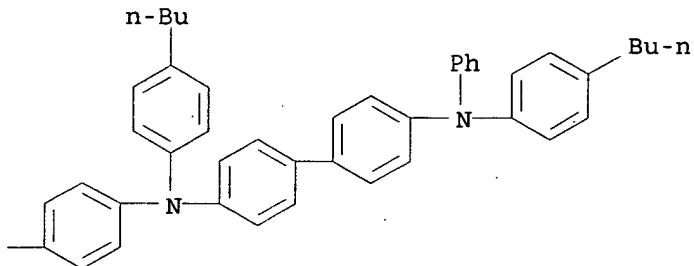
CRN 275794-02-0

CMF C106 H98 F6 N4 O4 Si

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PAGE 1-B



CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 36, 73, 76

IT 269078-58-2P 269078-60-6P 275794-04-2P

275794-06-4P

(triarylamine-containing poly(perfluorocyclobutane) as
hole-transporting material for polymer light-
emitting diodes)REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L18 ANSWER 28 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:303188 HCPLUS

DOCUMENT NUMBER: 133:74924

TITLE: Thermal stability and EL (electroluminescent)
efficiency of polymer thin film prepared from
TPD-acrylateAUTHOR(S): Tamada, M.; Koshikawa, H.; Suwa, T.; Yoshioka,
T.; Usui, H.; Sato, H.CORPORATE SOURCE: Department of Material Development, Takasaki
Radiation Chemistry Research Establishment,
Japan Atomic Energy Research Institute, Gunma,
370-12, JapanSOURCE: Polymer (2000), 41(15), 5661-5667
CODEN: POLMAG; ISSN: 0032-3861

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new acrylate bearing N,N'-diphenyl-N,N'-bis(4-methylphenyl)-
[1,1'-biphenyl]-4,4'-diamine (TPD) was synthesized to apply for
hole transport layer of an EL device. The thin film of this
monomer was fabricated with phys. vapor deposition. The obtained
thin film was preliminarily irradiated with UV light and then
heated up to 400 K in vacuum. The resulting polymer film, 60-nm
thick, which had a polymer conversion of 96%, had a smooth
surface. This even surface could be maintained up to heating at
420 K. These processes of deposition and polymerization were monitored
with in situ reflection IR spectroscopy. The EL device made of
polymer thin film had 3-times higher efficiency than that from the
monomer thin film.IT 197094-08-9P, N-(4-Acryloyloxyethylphenyl)-N'-phenyl-N,N'-
bis(4-methylphenyl)-[1,1'-biphenyl]-4,4'-diamine homopolymer
(electroluminescent efficiency and thermal stability
of polymer thin films prepared from TPD-acrylate)

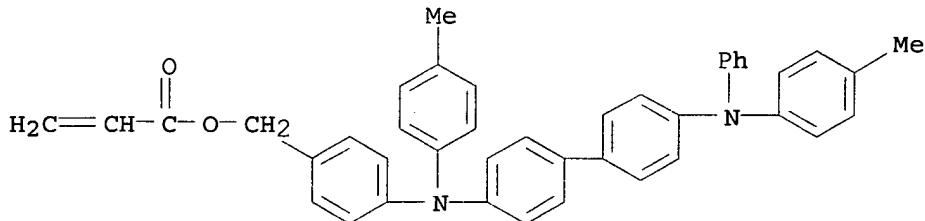
RN 197094-08-9 HCPLUS

CN 2-Propenoic acid, [4-[(4-methylphenyl)[4'-[(4-

methylphenyl)phenylamino] [1,1'-biphenyl]-4-yl]amino]phenyl]methyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 197094-07-8
CMF C42 H36 N2 O2



CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 37, 73

IT 197094-08-9P, N-(4-Acryloyloxyethylphenyl)-N'-phenyl-N,N'-bis(4-methylphenyl)-[1,1'-biphenyl]-4,4'-diamine homopolymer (electroluminescent efficiency and thermal stability of polymer thin films prepared from TPD-acrylate)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 29 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:208415 HCPLUS

DOCUMENT NUMBER: 132:348321

TITLE: High performance perfluorocyclobutane-containing polymers for electro-optic and light-emitting diode applications

AUTHOR(S): Jen, Alex K.-Y.; Ma, Hong; Wu, Jianyao; Liu, Sen; Herguth, Petra; Jiang, Xuezhong; Liu, Michelle; Chen, Baoquan; Zheng, Lixin

CORPORATE SOURCE: Department of Materials Science and Engineering, University of Washington, Seattle, WA, 98195-2120, USA

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2000), 41(1), 774-775

PUBLISHER: CODEN: ACPPAY; ISSN: 0032-3934

American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of second-order nonlinear optical (NLO) thermoset polymers containing silicon-perfluorocyclobutane (PFCB) have been developed via the crosslinking reaction between the di(trifluoro vinyl ether)-containing NLO chromophores and the tris(trifluoro vinyl ether) monomer in solid state at 190-250°. The radical-mediated, stepwise cycloaddn. reaction offers great tolerance for chromophore with very sensitive functional groups, such as the tricyanovinyl acceptor. A broad variation of NLO chromophores could be easily incorporated into these thermoset polymers. Preliminary results have shown that these polymers possess excellent processibility, low optical loss, and a

combination of desirable thermal, nonlinear optical, and mech. properties. Tri-Ph amine- and tetraphenylenediamine-containing PFCB polymers derived from this method have shown excellent processibility, thermal stability, solvent-resistance, electrochem. reversibility, and hole-transporting ability. Preliminary results from a series of multilayer light-emitting diodes using these polymers as the hole-transporting layer have demonstrated low turn-on voltages, high external quantum efficiencies and high brightness.

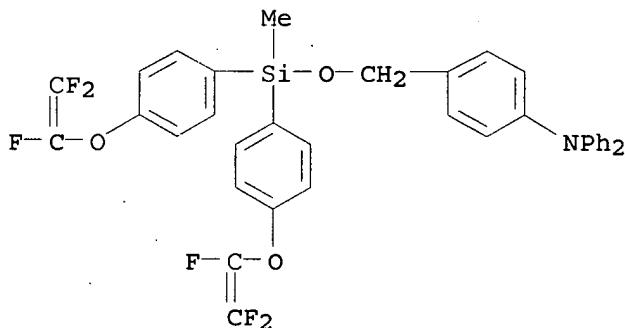
IT 269078-58-2P 269078-60-6P
 (hole-transporting material; high performance perfluorocyclobutane-containing polymers as hole-transporting material for electro-optic and light-emitting diode applications)

RN 269078-58-2 HCPLUS
 CN Benzenamine, 4-[[[methylbis[4-[(trifluoroethenyl)oxy]phenyl]silyl]oxy]methyl]-N,N-diphenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 269078-57-1

CMF C36 H27 F6 N 03 Si



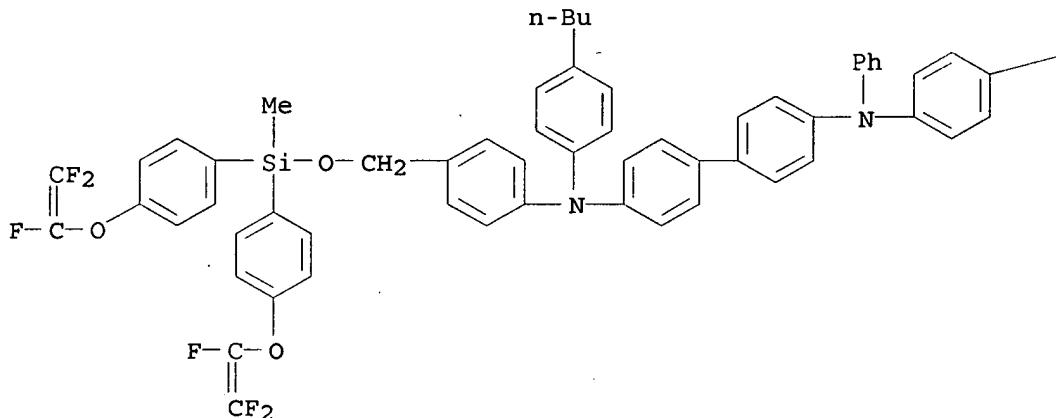
RN 269078-60-6 HCPLUS
 CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-butylphenyl)-N-[4-[[[methylbis[4-[(trifluoroethenyl)oxy]phenyl]silyl]oxy]methyl]phenyl]-N'-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 269078-59-3

CMF C62 H56 F6 N2 O3 Si

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CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 73

IT 269078-58-2P 269078-60-6P
 (hole-transporting material; high performance
 perfluorocyclobutane-containing polymers as hole-transporting
 material for electro-optic and light-emitting
 diode applications)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L18 ANSWER 30 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:83140 HCPLUS

DOCUMENT NUMBER: 132:138460

TITLE: Electrically-active, light-emitting polymers
 forming films from solution

INVENTOR(S): Hoerhold, Hans-Heinrich; Raabe, Dietrich;
 Helbig, Manfred

PATENT ASSIGNEE(S): Germany

SOURCE: Ger. Offen., 18 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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DE 19832943	A1	20000203	DE 1998-19832943	1998
				0722
PRIORITY APPLN. INFO.:			DE 1998-19832943	1998

0722

AB The title polymers contain repeating arylenediamine units of specified structure. Stirring 9 mmol α,α' -diphenyl-1,4-benzenedimethanol and 10 mmol N,N'-bis(3-methylphenyl)-N,N'-diphenylbenzidine in 80 mL POC13 at room temperature for 30 min and at 45° for 90 min gave 70% colorless polymer with weight-average mol. weight 47,700. The spectral and elec. properties. of the polymer are described.

IT 256523-99-6P 256524-00-2P 256524-01-3P
 256524-02-4P 256524-03-5P 256524-04-6P
 256524-05-7P 256524-07-9P 256524-09-1P
 256524-10-4P

(elec.-active, light-emitting polymers
 forming films from solution)

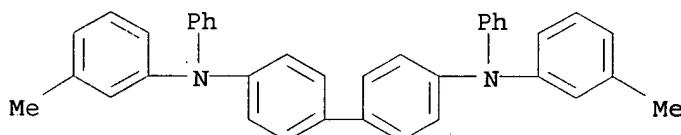
RN 256523-99-6 HCPLUS

CN 1,4-Benzenedimethanol, α,α' -diphenyl-, polymer with
 N,N'-bis(3-methylphenyl)-N,N'-diphenyl[1,1'-biphenyl]-4,4'-diamine
 (9CI) (CA INDEX NAME)

CM 1

CRN 65181-78-4

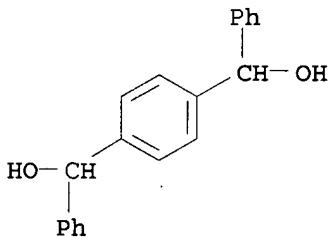
CMF C38 H32 N2



CM 2

CRN 32449-03-9

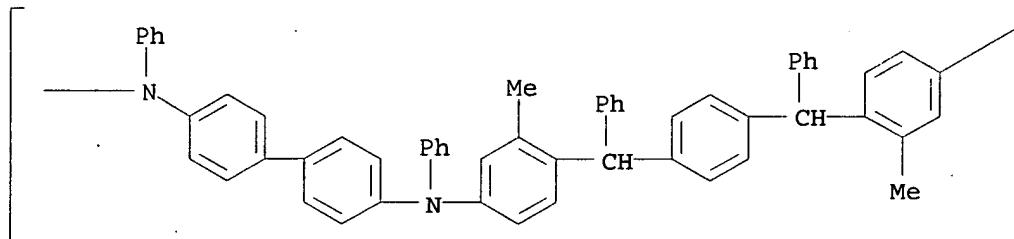
CMF C20 H18 O2



RN 256524-00-2 HCPLUS

CN Poly[(phenylimino)[1,1'-biphenyl]-4,4'-diyl(phenylimino)(3-methyl-1,4-phenylene)(phenylmethylen)-1,4-phenylene(phenylmethylen)(2-methyl-1,4-phenylene)] (9CI) (CA INDEX NAME)

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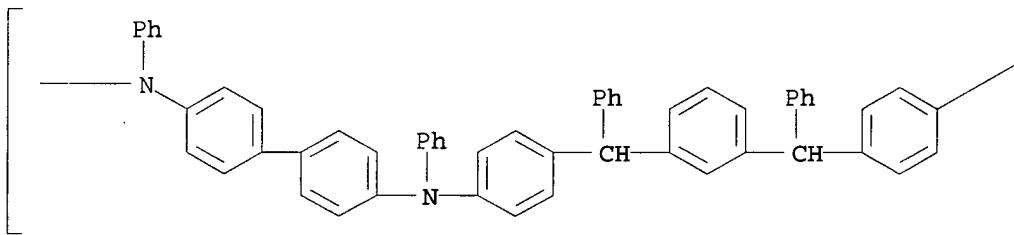
PAGE 1-B



RN 256524-01-3 HCAPLUS

CN Poly[(phenylimino)-1,1'-biphenyl]-4,4'-diyl(phenylimino)-1,4-phenylene(phenylmethylene)-1,3-phenylene(phenylmethylene)-1,4-phenylene] (9CI) (CA INDEX NAME)

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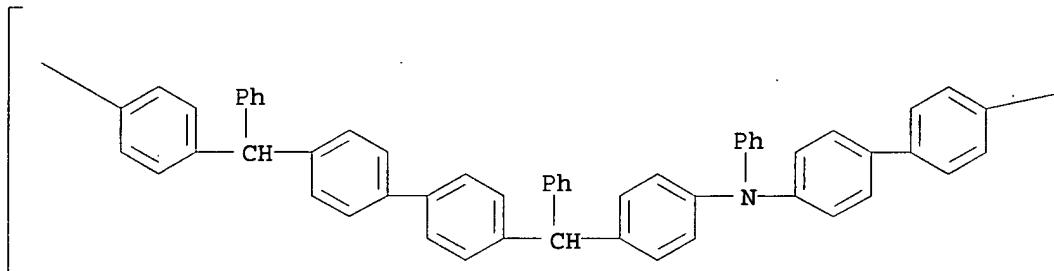


RN 256524-02-4 HCAPLUS

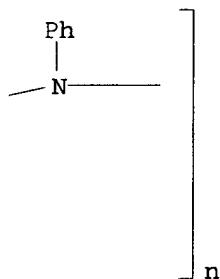
CN Poly[(phenylimino)-1,1'-biphenyl]-4,4'-diyl(phenylimino)-1,4-phenylene(phenylmethylene)-1,1'-biphenyl]-4,4'-

diyl(phenylmethylene)-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



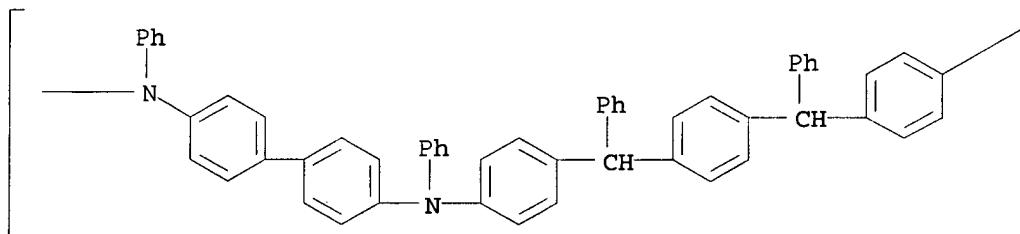
PAGE 1-B



RN 256524-03-5 HCPLUS

CN Poly[(phenylimino)[1,1'-biphenyl]-4,4'-diyl(phenylimino)-1,4-phenylene(phenylmethylene)-1,4-phenylene(phenylmethylene)-1,4-phenylene] (9CI) (CA INDEX NAME)

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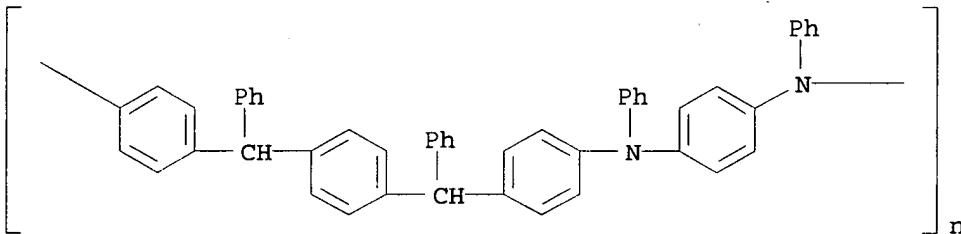


PAGE 1-B

]
n

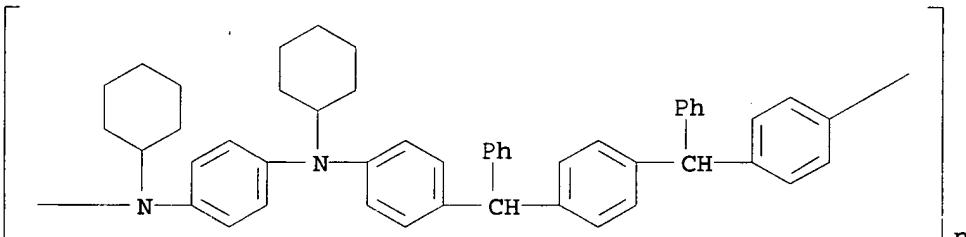
RN 256524-04-6 HCPLUS

CN Poly[(phenylimino)-1,4-phenylene(phenylimino)-1,4-phenylene(phenylmethylene)-1,4-phenylene(phenylmethylene)-1,4-phenylene] (9CI) (CA INDEX NAME)



RN 256524-05-7 HCPLUS

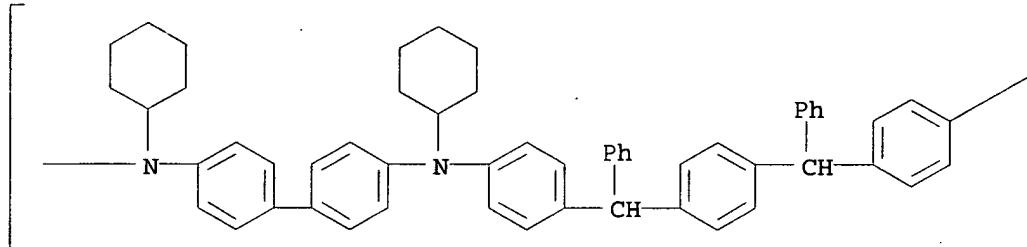
CN Poly[(cyclohexylimino)-1,4-phenylene(cyclohexylimino)-1,4-phenylene(phenylmethylene)-1,4-phenylene(phenylmethylene)-1,4-phenylene] (9CI) (CA INDEX NAME)



RN 256524-07-9 HCPLUS

CN Poly[(cyclohexylimino)[1,1'-biphenyl]-4,4'-diyl(cyclohexylimino)-1,4-phenylene(phenylmethylene)-1,4-phenylene(phenylmethylene)-1,4-phenylene] (9CI) (CA INDEX NAME)

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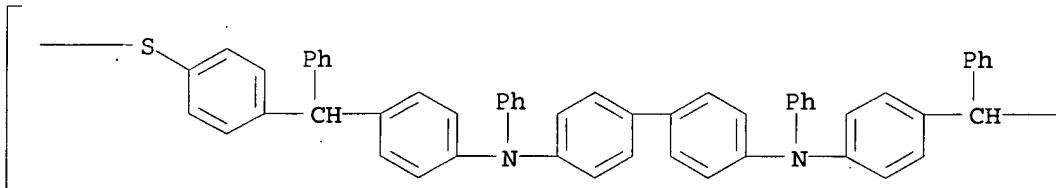
PAGE 1-B



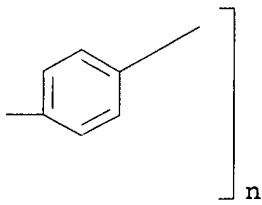
RN 256524-09-1 HCPLUS

CN Poly[thio-1,4-phenylene(phenylmethylene)-1,4-phenylene(phenylimino)[1,1'-biphenyl]-4,4'-diyl(phenylimino)-1,4-phenylene(phenylmethylene)-1,4-phenylene] (9CI) (CA INDEX NAME)

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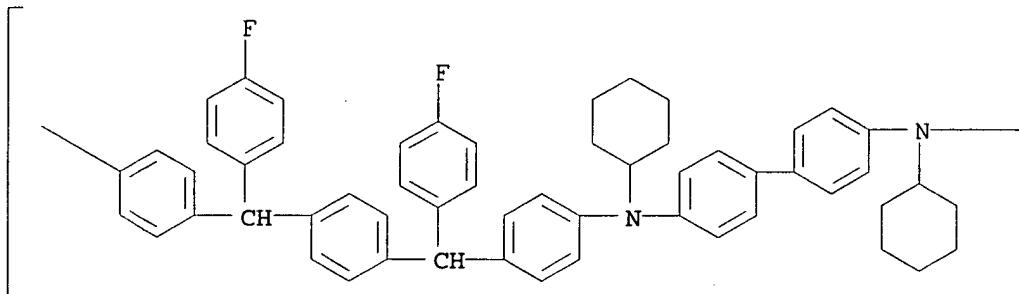


RN 256524-10-4 HCPLUS

CN Poly[(cyclohexylimino)[1,1'-biphenyl]-4,4'-diyl(cyclohexylimino)-1,4-phenylene[(4-fluorophenyl)methylene]-1,4-phenylene[(4-

fluorophenyl)methylene]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

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IC ICM C08G061-12
 ICS C08G073-02; C08L079-02
 CC 38-3 (Plastics Fabrication and Uses)
 IT 256523-99-6P 256524-00-2P 256524-01-3P
 256524-02-4P 256524-03-5P 256524-04-6P
 256524-05-7P 256524-06-8P 256524-07-9P
 256524-08-0DP, alkyl ethers 256524-09-1P
 256524-10-4P
 (elec.-active, light-emitting polymers
 forming films from solution)

L18 ANSWER 31 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1999:365178 HCAPLUS
 DOCUMENT NUMBER: 131:145343
 TITLE: Synthesis and characterization of a
 high-performance copolymer for light-emitting
 diodes
 AUTHOR(S): Liu, Yunqi; Ma, Hong; Liu, Michelle S.; Liu,
 Sen; Jen, Alex K.-Y.
 CORPORATE SOURCE: Dep. Chem., Northeastern Univ., Boston, MA,
 USA
 SOURCE: Proceedings of SPIE-The International Society
 for Optical Engineering (1999), 3623(Organic
 Photonic Materials and Devices), 28-34
 CODEN: PSISDG; ISSN: 0277-786X
 PUBLISHER: SPIE-The International Society for Optical
 Engineering
 DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new luminescent copolymer containing three functional moieties was prepared. It possesses high thermal stability, good electrochem. reversibility, and good thin film-forming ability. Elec. characterization of a two-layer diode device based on the structure of ITO/CuPc/fluorinated polyquinoline/Al showed excellent electroluminescence performance.

IT 236389-33-6P
(synthesis and characterization of a high-performance copolymer for light-emitting diodes)

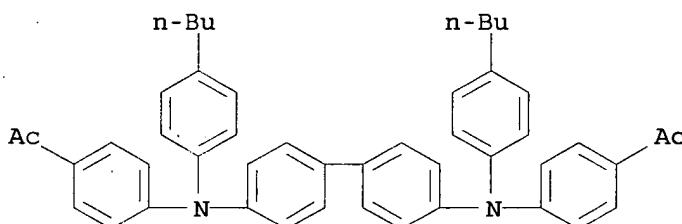
RN 236389-33-6 HCPLUS

CN Ethanone, 1,1'-[[1,1'-biphenyl]-4,4'-diyl]bis[[4-butylphenyl]imino]-4,1-phenylene]bis-, polymer with (4,4'-diamino[1,1'-biphenyl]-3,3'-diyl)bis[phenylmethanone] and 1,1'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]di-4,1-phenylene]bis[ethanone] (9CI) (CA INDEX NAME)

CM 1

CRN 213814-55-2

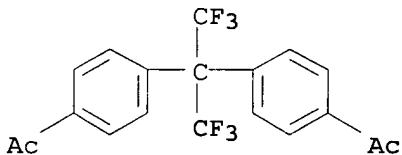
CMF C48 H48 N2 O2



CM 2

CRN 142059-49-2

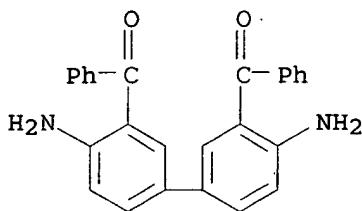
CMF C19 H14 F6 O2



CM 3

CRN 71713-10-5

CMF C26 H20 N2 O2



CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 73

IT 236389-33-6P

(synthesis and characterization of a high-performance copolymer for light-emitting diodes)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 32 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:237536 HCPLUS

DOCUMENT NUMBER: 131:45647

TITLE: Synthesis of high-Tg hole-transporting polymers with different redox potentials and their performance in organic two-layer LEDs
Bellmann, Erika; Shaheen, Sean E.; Marder, Seth R.; Kippenen, Bernard; Grubbs, Robert H.; Peyghambarian, Nasser

AUTHOR(S):

CORPORATE SOURCE: Arnold and Mabel Beckman Laboratories of Chemical Synthesis, Division of Chemistry and Chemical Engineering, California Institute of Technology, Pasadena, CA, 91125, USA
Proceedings of SPIE-The International Society for Optical Engineering (1998), 3476(Organic Light-Emitting Materials and Devices II), 322-331

SOURCE: CODEN: PSISDG; ISSN: 0277-786X

PUBLISHER: SPIE-The International Society for Optical Engineering

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Organic hole transport materials are used in organic LEDs, where they substantially improve device performance if placed as a hole transport layer (HTL) between the anode and the electroluminescent layer (EL). Soluble polymeric hole transport materials with high glass transition temps. are of particular interest, because they allow for efficient device fabrication through spin casting of the HTL, and high glass transition temps. have been found to improve thermal and long-term stability of the device. The redox potential of the hole transport material dets. the facility of charge injection at the anode/HTL and the HTL/EL interfaces, thus affecting the overall device efficiency. We have synthesized a series of soluble hole-transporting polymers with glass transition temps. in the range of 130°C to 150°C. The synthetic method allows facile substitution of the hole transport functionality with electron-withdrawing and electron-donating groups, which permits tuning of the redox potential of the polymer. These polymers have been used as HTL in two-layer devices ITO/HTL/Alq/Mg. The maximum external quantum efficiency

increases, if the redox potential is changed to facilitate reduction of the hole transport material at the HTL/EL interface. Electron-deficient derivs. show higher external quantum efficiencies. The device stability, however, follows the opposite trend.

IT 220716-65-4P 220716-67-6P 220716-68-7P

220716-69-8P 227176-03-6P

(synthesis and characterization of high-glass-temperature hole-transporting polymers with different redox potentials and performance in organic two-layer LEDs)

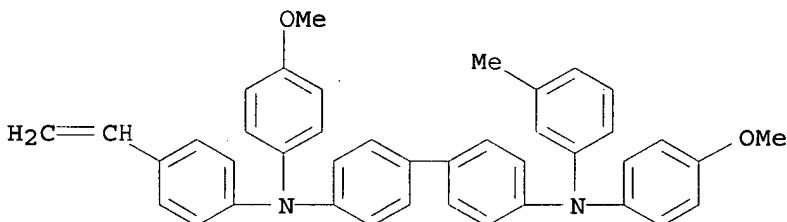
RN 220716-65-4 HCPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N-(4-ethenylphenyl)-N,N'-bis(4-methoxyphenyl)-N'-(3-methylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 220716-60-9

CMF C41 H36 N2 O2



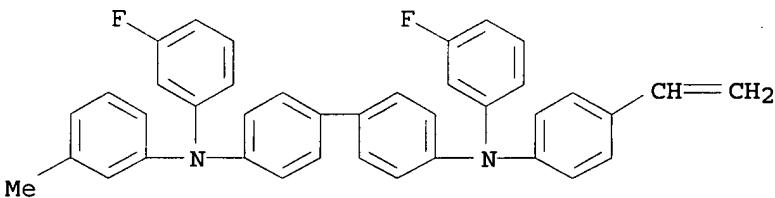
RN 220716-67-6 HCPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N-(4-ethenylphenyl)-N,N'-bis(3-fluorophenyl)-N'-(3-methylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 220716-62-1

CMF C39 H30 F2 N2



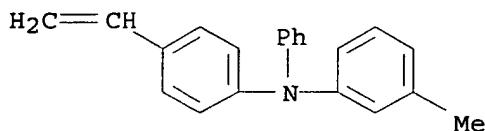
RN 220716-68-7 HCPLUS

CN Benzenamine, N-(4-ethenylphenyl)-3-methyl-N-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 220716-63-2

CMF C21 H19 N



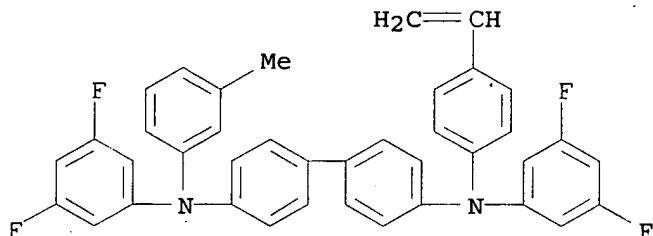
RN 220716-69-8 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3,5-difluorophenyl)-N-(4-ethenylphenyl)-N'-(3-methylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 220716-64-3

CMF C39 H28 F4 N2



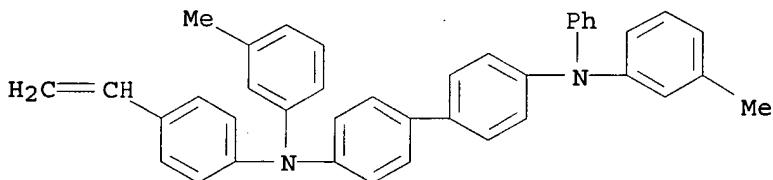
RN 227176-03-6 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N-(4-ethenylphenyl)-N,N'-bis(3-methylphenyl)-N'-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 227176-02-5

CMF C40 H34 N2



CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 35, 73

IT 220716-65-4P 220716-67-6P 220716-68-7P

220716-69-8P 227176-03-6P

(synthesis and characterization of high-glass-temperature hole-transporting polymers with different redox potentials and performance in organic two-layer LEDs)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 33 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1998:532320 HCAPLUS
 DOCUMENT NUMBER: 129:276755
 TITLE: Synthesis and characterization of
 quinoline-triphenyldiamine copolymers as
 light-emitting materials
 AUTHOR(S): Liu, Yun Qi; Ma, Hong; Liu, Shi; Li, Xiao
 Chang; Jen, Alex K.-Y.
 CORPORATE SOURCE: Dep. Chem., Northeastern Univ., Boston, MA,
 02115, USA
 SOURCE: Polymer Preprints (American Chemical Society,
 Division of Polymer Chemistry) (1998), 39(2),
 1089-1090
 CODEN: ACPPAY; ISSN: 0032-3934
 PUBLISHER: American Chemical Society, Division of Polymer
 Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Two quinoline-N,N'-diphenyl-N,N'-bis(alkylphenyl)-1,1'-biphenyl-4,4'-diamine derivative copolymers were synthesized. Their electrochem. behavior was investigated by cyclic voltammetry. Both oxidation (p-doping) and reduction (n-doping) processes were reversible. The energy levels of HOMO and LUMO were calculated based on their electrochem. and optical data. TGA and DSC anal. indicated that these copolymers were thermal stable with high Tg (195 oC). The electroluminescent properties of these copolymers is presented.

IT 213814-56-3P 213814-63-2P 213814-67-6P
 213814-71-2P
 (synthesis and characterization of quinoline-containing copolymer
 as light-emitting materials)

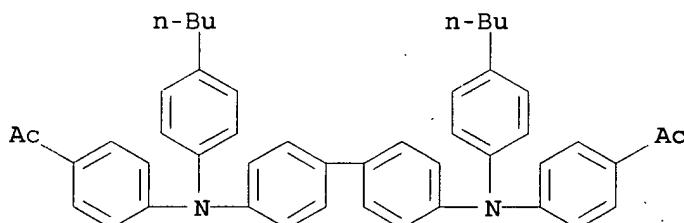
RN 213814-56-3 HCAPLUS

CN Methanone, (4,4'-diamino[1,1'-biphenyl]-3,3'-diyl)bis[phenyl-,
 polymer with [[1,1'-biphenyl]-4,4'-diylbis[[4-butylphenyl]imino]-
 4,1-phenylene]]bis[methylmethanone] (9CI) (CA INDEX NAME)

CM 1

CRN 213814-55-2

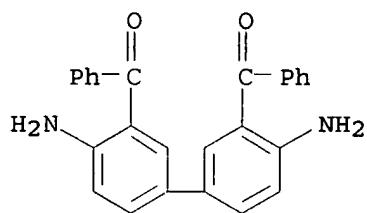
CMF C48 H48 N2 O2



CM 2

CRN 71713-10-5

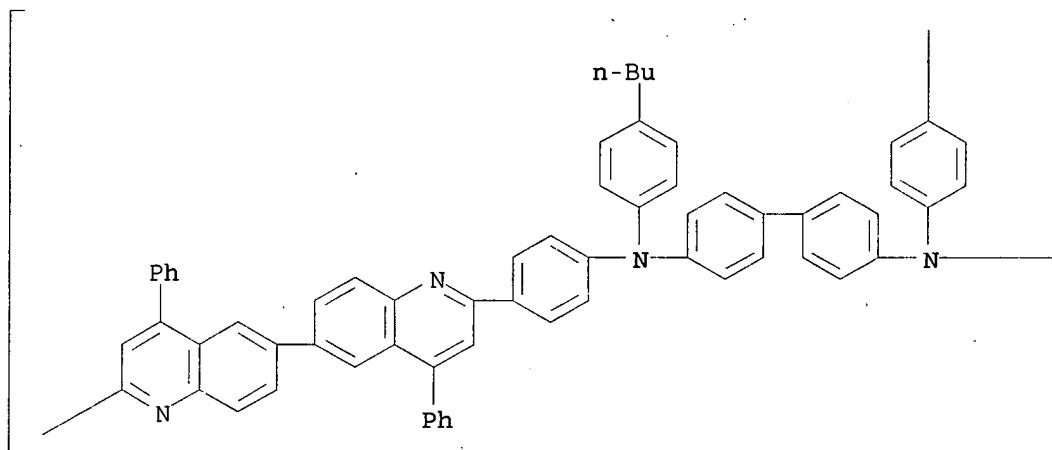
CMF C26 H20 N2 O2



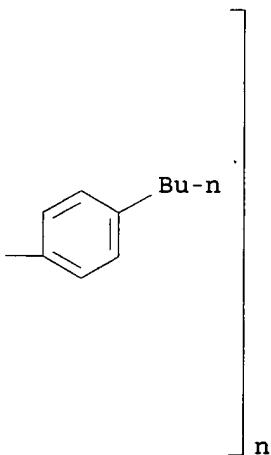
RN 213814-63-2 HCAPLUS

CN Poly[(4,4'-diphenyl-6,6'-biquinoline-2,2'-diyl)-1,4-phenylene[(4-butylphenyl)imino][1,1'-biphenyl]-4,4'-diyl[(4-butylphenyl)imino]-1,4-phenylene] (9CI) (CA INDEX NAME)

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PAGE 1-B



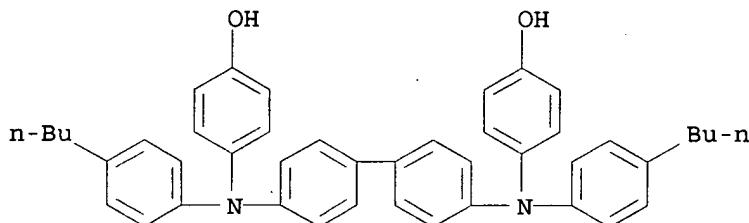
RN 213814-67-6 HCAPLUS

CN Phenol, 4,4'-[[1,1'-biphenyl]-4,4'-diylbis[(4-butylphenyl)imino]]bis-, polymer with 2,2'-bis(4-fluorophenyl)-4,4'-diphenyl-6,6'-biquinoline (9CI) (CA INDEX NAME)

CM 1

CRN 213814-66-5

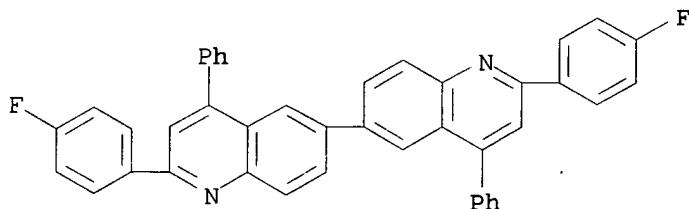
CMF C44 H44 N2 O2



CM 2

CRN 180268-07-9

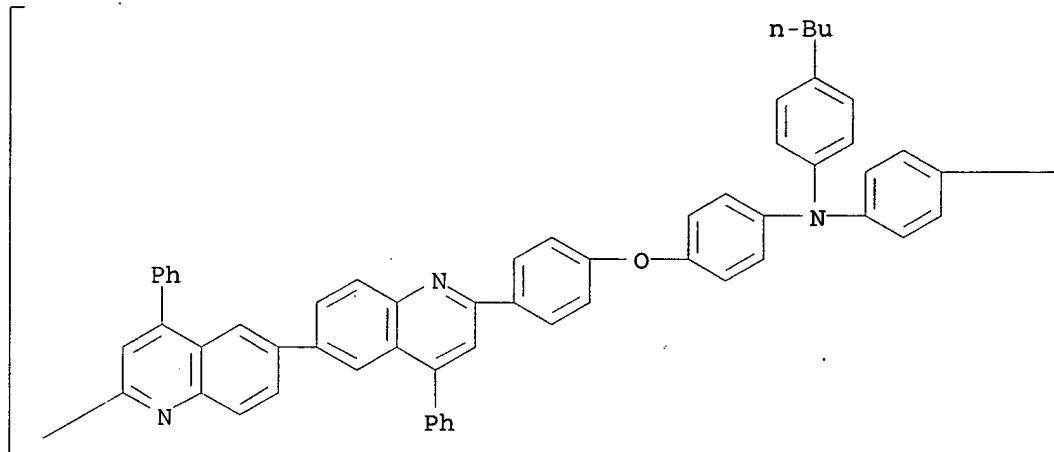
CMF C42 H26 F2 N2



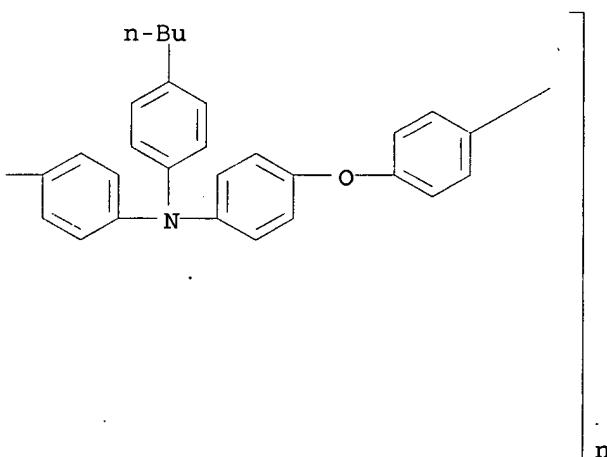
RN 213814-71-2 HCAPLUS

CN Poly[(4,4'-diphenyl-6,6'-biquinoline-2,2'-diyl)-1,4-phenyleneoxy-1,4-phenylene[(4-butylphenyl)imino][1,1'-biphenyl]-4,4'-diyl[(4-butylphenyl)imino]-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)

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PAGE 1-B



CC 37-3 (Plastics Manufacture and Processing)

IT 213814-56-3P 213814-63-2P 213814-67-6P

213814-71-2P

(synthesis and characterization of quinoline-containing copolymer
as light-emitting materials)REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L18 ANSWER 34 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:618270 HCPLUS

DOCUMENT NUMBER: 127:263592

TITLE: Crosslinkable or chain extendable
polyarylpolyamines and films for
electroluminescent devices

INVENTOR(S): Woo, Edmund P.; Inbasekaran, Michael; Shiang,

PATENT ASSIGNEE(S) : William R.; Roof, Gordon R.; Wu, Weishi
 SOURCE: Dow Chemical Co., USA
 PCT Int. Appl., 57 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9733193	A2	19970912	WO 1997-US2643	1997 0220
WO 9733193	A3	20020926		
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9722776	A1	19970922	AU 1997-22776	1997 0220
US 5929194	A	19990727	US 1997-967348	1997 1027
PRIORITY APPLN. INFO.:			US 1996-606180	A 1996 0223
			US 1996-696280	A 1996 0813
			WO 1997-US2643	W 1997 0220

OTHER SOURCE(S) : MARPAT 127:263592

AB The polyarylpolyamines are prepared by the reaction of ≥ 1 tertiary di- or polyarylamine having 2 halogen substituents with a haloarom. compound having a crosslinkable reactive group or trialkylsiloxy moiety. Films of the title compds., as well as films of polymers of their crosslinkable species, are efficient in the transport of pos. charges when exposed to relatively low voltage levels, and demonstrate solvent and heat resistance.

IT 195730-72-4P
 (crosslinkable or chain extendable polyarylpolyamines for solvent-resistant films for electroluminescent devices)

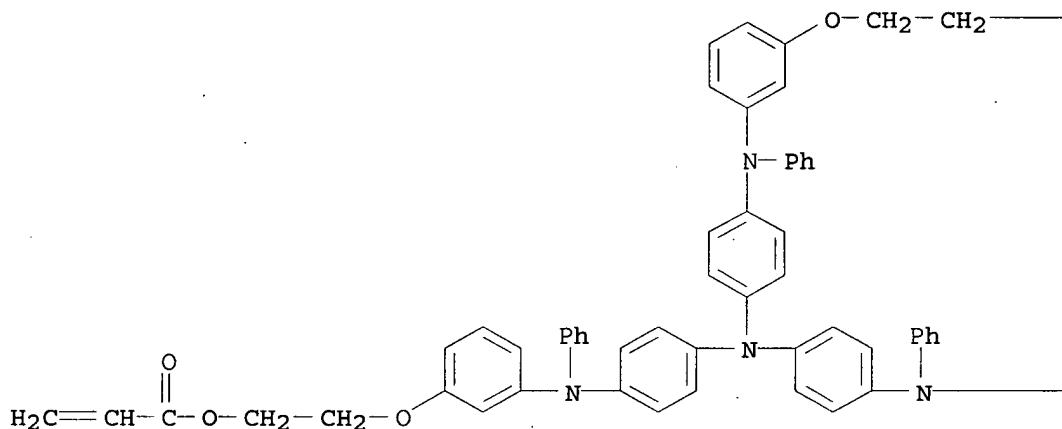
RN 195730-72-4 HCPLUS

CN 2-Propenoic acid, nitrilotris[4,1-phenylene(phenylimino)-3,1-phenyleneoxy-2,1-ethanediyl] ester, homopolymer (9CI) (CA INDEX NAME)

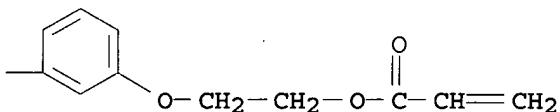
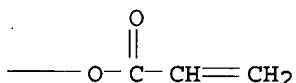
CM 1

CRN 195730-64-4
CMF C69 H60 N4 O9

PAGE 1-A



PAGE 1-B



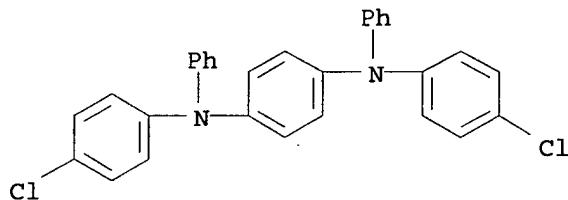
IT 113703-67-6P 195730-71-3P
(crosslinkable or chain extendable polyarylpolyamines for
solvent-resistant films for **electroluminescent**
devices)

RN 113703-67-6 HCPLUS

CN 1,4-Benzenediamine, N,N'-bis(4-chlorophenyl)-N,N'-diphenyl-,
homopolymer (9CI) (CA INDEX NAME)

CM 1

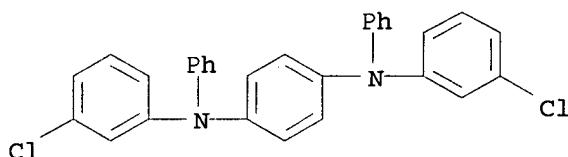
CRN 113703-66-5
 CMF C30 H22 Cl2 N2



RN 195730-71-3 HCPLUS
 CN 1,4-Benzenediamine, N,N'-bis(3-chlorophenyl)-N,N'-diphenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 195730-70-2
 CMF C30 H22 Cl2 N2

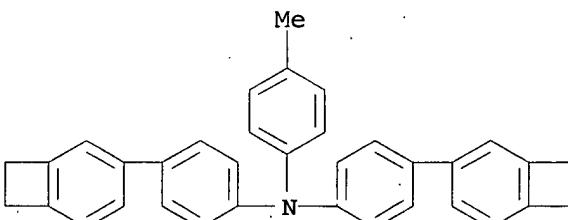


IT 195730-33-7P 195730-37-1P 195730-38-2P
 195730-45-1P 195730-51-9P 195730-55-3P
 195891-85-1P
 (film; crosslinkable or chain extendable polyarylpolyamines for solvent-resistant films for **electroluminescent** devices)

RN 195730-33-7 HCPLUS
 CN Benzenamine, 4-bicyclo[4.2.0]octa-1,3,5-trien-3-yl-N-(4-bicyclo[4.2.0]octa-1,3,5-trien-3-ylphenyl)-N-(4-methylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 195730-32-6
 CMF C35 H29 N



RN 195730-37-1 HCPLUS

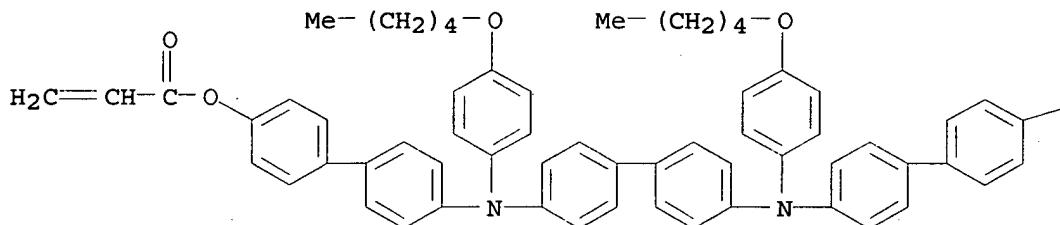
CN 2-Propenoic acid, [1,1'-biphenyl]-4,4'-diylbis[[[4-(pentyloxy)phenyl]imino][1,1'-biphenyl]-4',4-diyl] ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

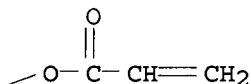
CRN 195730-36-0

CMF C64 H60 N2 O6

PAGE 1-A



PAGE 1-B



RN 195730-38-2 HCAPLUS

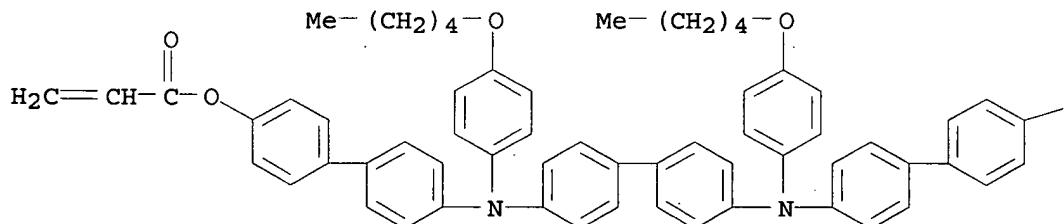
CN 2-Propenoic acid, [1,1'-biphenyl]-4,4'-diylbis[[[4-(pentyloxy)phenyl]imino][1,1'-biphenyl]-4',4-diyl] ester, polymer with 2-ethyl-2-[(1-oxo-2-propenyl)oxy]methyl-1,3-propanediyl di-2-propenoate (9CI) (CA INDEX NAME)

CM 1

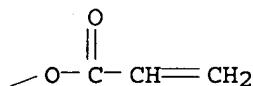
CRN 195730-36-0

CMF C64 H60 N2 O6

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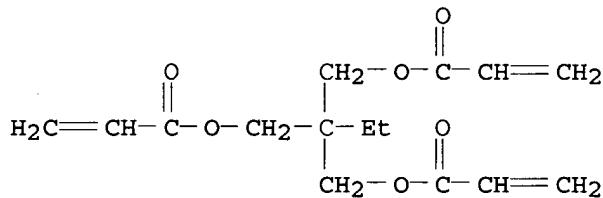


PAGE 1-B



CM 2

CRN 15625-89-5
 CMF C15 H20 O6



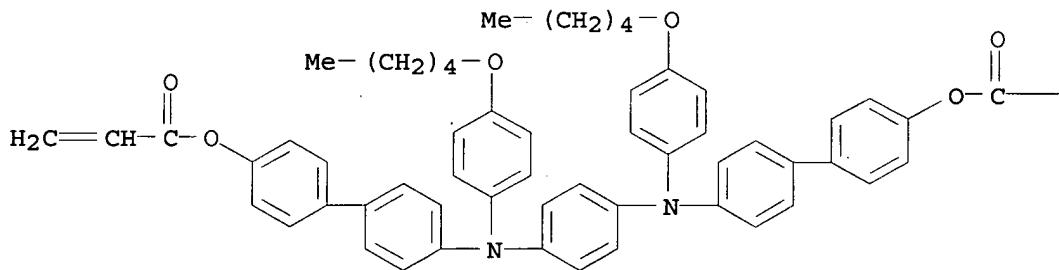
RN 195730-45-1 HCAPLUS

CN 2-Propenoic acid, 2-ethyl-2-[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester, polymer with 1,4-phenylenebis[[4-(pentyloxy)phenyl]imino][1,1'-biphenyl]-4',4-diyl di-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 195730-44-0
 CMF C58 H56 N2 O6

PAGE 1-A

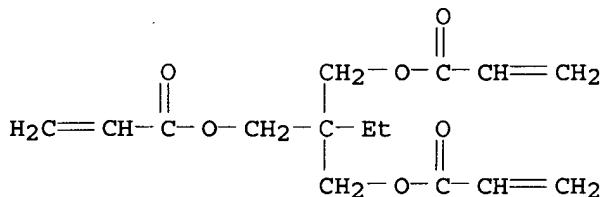


PAGE 1-B

—CH=CH₂

CM 2

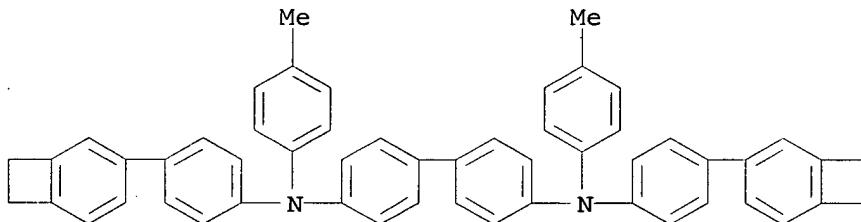
CRN 15625-89-5
CMF C15 H20 O6



RN 195730-51-9 HCPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bicyclo[4.2.0]octa-1,3,5-trien-3-ylphenyl)-N,N'-bis(4-methylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

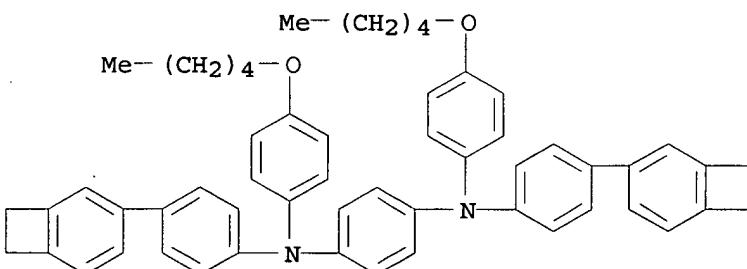
CRN 195730-49-5
CMF C54 H44 N2



RN 195730-55-3 HCPLUS
CN 1,4-Benzenediamine, N,N'-bis(4-bicyclo[4.2.0]octa-1,3,5-trien-3-ylphenyl)-N,N'-bis[4-(pentyloxy)phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 195730-53-1
CMF C56 H56 N2 O2



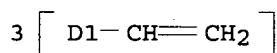
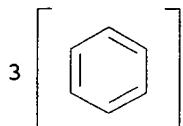
RN 195891-85-1 HCPLUS
CN 1,4-Benzenediamine, N-[3-[(ethenylphenyl)methoxy]phenyl]-N',N'-bis[4-[(3-[(ethenylphenyl)methoxy]phenyl)phenylamino]phenyl]-N-

phenyl-, homopolymer (9CI) (CA INDEX NAME)

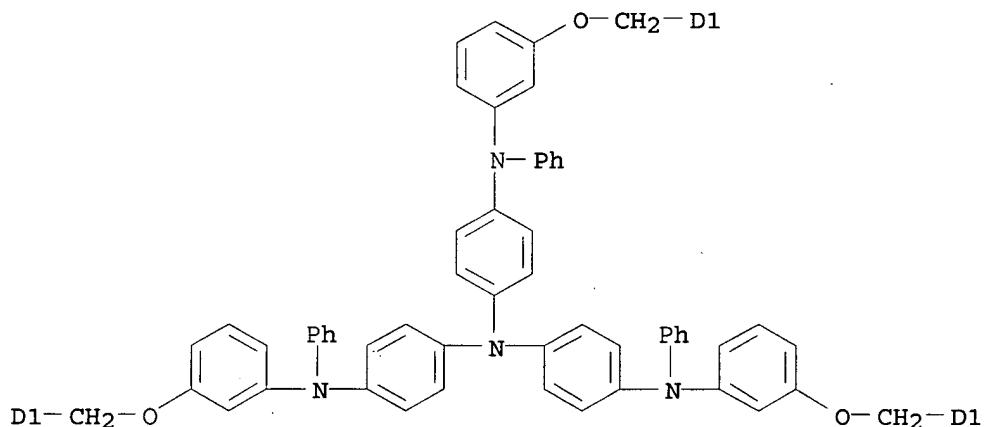
CM 1

CRN 195891-84-0
CMF C81 H66 N4 O3
CCI IDS

PAGE 1-A



PAGE 2-A



IC ICM G03C
 CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 35, 72
 IT 195730-72-4P
 (crosslinkable or chain extendable polyarylpolyamines for
 solvent-resistant films for **electroluminescent**
 devices)
 IT 100308-69-8DP, reaction products with arylamines, oligomer
 113703-67-6P 195730-31-5P 195730-60-0DP, reaction
 products with benzyl chloride and vinylbenzyl chloride
 195730-66-6P 195730-71-3P
 (crosslinkable or chain extendable polyarylpolyamines for
 solvent-resistant films for **electroluminescent**
 devices)
 IT 195730-33-7P 195730-37-1P 195730-38-2P

195730-45-1P 195730-51-9P 195730-55-3P

195891-85-1P

(film; crosslinkable or chain extendable polyarylpolyamines for solvent-resistant films for **electroluminescent** devices)

L18 ANSWER 35 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:563439 HCPLUS

DOCUMENT NUMBER: 127:191351

TITLE: Synthesis of polymers for hole and electron transport materials in organic electroluminescent devices

AUTHOR(S): Son, Jhun Mo; Sakaki, Yuichi; Ogino, Kenji; Sato, Hisaya

CORPORATE SOURCE: Faculty of Technology, Tokyo University of Agriculture and Technology, Tokyo, 184, Japan

SOURCE: IEEE Transactions on Electron Devices (1997), 44(8), 1307-1314

CODEN: IETDAI; ISSN: 0018-9383

PUBLISHER: Institute of Electrical and Electronics Engineers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Styrene-type polymers having tetraphenylbenzidine (TPD) or tetraphenylphenyldiaminobenzene unit (PDA) and a oxadiazole unit on the side chain were prepared as hole and electron transport materials, resp., of an electroluminescent device. The device structures employed were [ITO/hole transport layer/Al] (type I), or [ITO/hole transport layer/electron transport layer/Al] (type II). Type I devices provided c.d. higher than 100 mA/cm² but no luminescence was observed. Type II devices emitted luminescence of about 10 cd/m² at the c.d. of about 170 mA/cm². The emission maximum of these devices were 460 and 530 nm for the device using TPD and PDA, resp.

IT 194354-33-1P 194354-35-3P

(preparation of styrene derivative polymers for hole and electron transport materials in organic **electroluminescent** devices)

RN 194354-33-1 HCPLUS

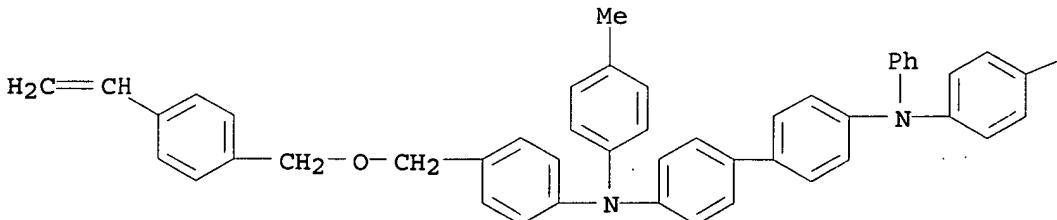
CN [1,1'-Biphenyl]-4,4'-diamine, N-[4-[[[4-ethenylphenyl)methoxy]methyl]phenyl]-N,N'-bis(4-methylphenyl)-N'-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 194354-30-8

CMF C48 H42 N2 O

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PAGE 1-B

Me

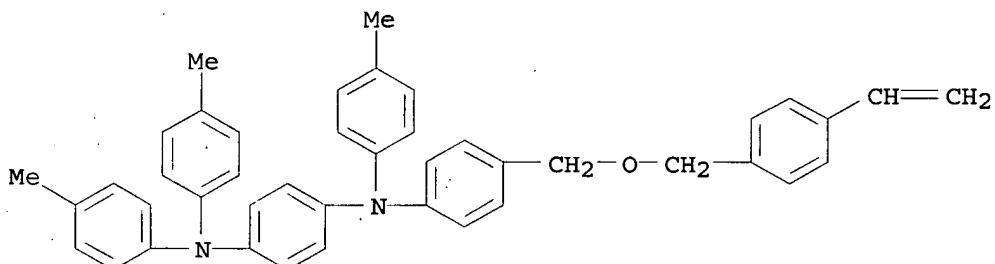
RN 194354-35-3 HCPLUS

CN 1,4-Benzenediamine, N-[4-[(4-ethenylphenyl)methoxy]methyl]phenyl]-N,N',N'-tris(4-methylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 194354-34-2

CMF C43 H40 N2 O



CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 73

IT 194354-33-1P 194354-35-3P 194354-36-4P

(preparation of styrene derivative polymers for hole and electron transport materials in organic **electroluminescent** devices)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 36 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:551392 HCPLUS

DOCUMENT NUMBER: 127:221570

TITLE: A novel fabrication technique and new conjugated polymers for multilayer polymer light-emitting diodes

AUTHOR(S): Murata, Hideyuki; Ukishima, Sadayuki; Hirano, Hideki; Yamanaka, Tohru

CORPORATE SOURCE: Chemical Synthesis Laboratories, Mitsui Petrochemical Industries Ltd, Sodegaura, 299-02, Japan

SOURCE: Polymers for Advanced Technologies (1997), 8(7), 459-464

CODEN: PADTE5; ISSN: 1042-7147

PUBLISHER: Wiley

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The authors report a novel fabrication technique for multilayer light-emitting diodes composed of new polyoxadiazole, POD, conjugated polymers for the first time. The fabrication technique

called vapor deposition polymerization is described. Chemical modification of monomers brought about the enhancement of reactivity and the production of high mol. weight of POD. Emission color with photoexcitation was controllable from violet-blue to green by varying the chemical structures of PODs. It was found that PODs could be employed as either electroluminescent or carrier-injecting layers by the optimization of the device structure. Two types of bilayer devices, which are constructed with POD/tris(8-quinolinoato) aluminum, Alq3, and with two POD layers with different chemical structures, were investigated. Carrier injection begins in the POD/Alq3 bilayer device near 7 V, and the device emitted green light from Alq3. The maximum luminance of the POD/Alq3 device reached 3500 cd/m². The POD/POD bilayer device emitted blue light with maximum luminance of 21 cd/m². Electroluminescence spectra of the devices coincided with photoluminescence spectra of each emitting material used.

IT 176762-01-9 194941-30-5 194941-39-4
 194941-44-1 194941-46-3 194941-48-5
 194941-52-1

(novel fabrication technique and new conjugated polymers for multilayer polymer light-emitting diodes)

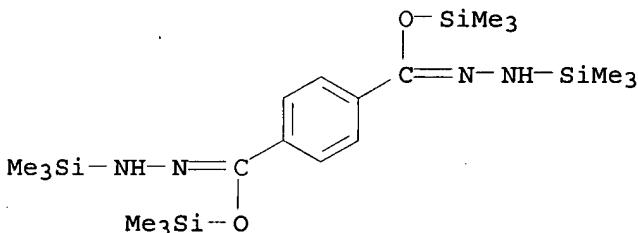
RN 176762-01-9 HCAPLUS

CN 1,4-Benzenedicarbohydrazonic acid, N,N'-bis(trimethylsilyl)-, bis(trimethylsilyl) ester, polymer with 5-(diphenylamino)-1,3-benzenedicarbonyl dichloride (9CI) (CA INDEX NAME)

CM 1

CRN 176761-96-9

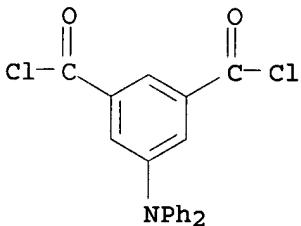
CMF C20 H42 N4 O2 Si4



CM 2

CRN 176761-93-6

CMF C20 H13 Cl2 N O2



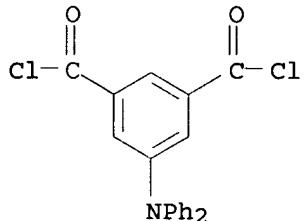
RN 194941-30-5 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, dihydrazide, polymer with
5-(diphenylamino)-1,3-benzenedicarbonyl dichloride (9CI) (CA
INDEX NAME)

CM 1

CRN 176761-93-6

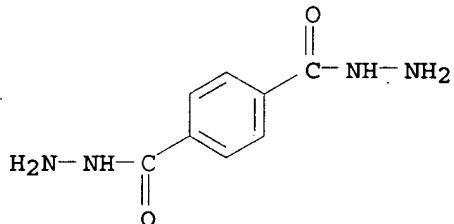
CMF C20 H13 Cl2 N O2



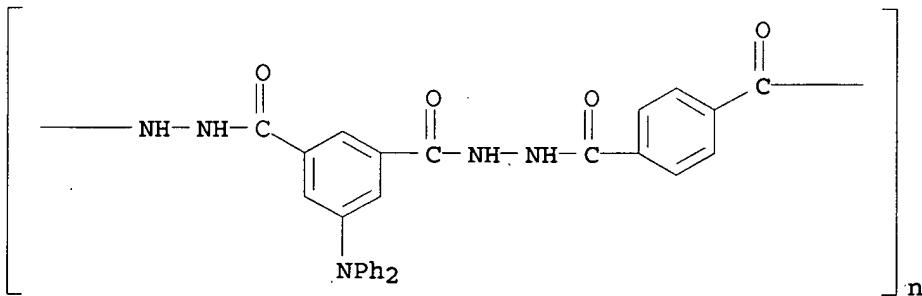
CM 2

CRN 136-64-1

CMF C8 H10 N4 O2

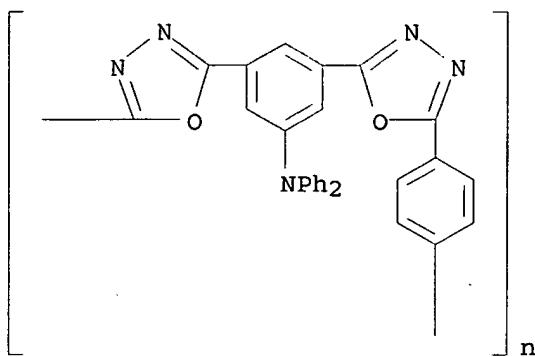


RN 194941-39-4 HCAPLUS

CN Poly[hydrazocarbonyl[5-(diphenylamino)-1,3-
phenylene]carbonylhydrazocarbonyl-1,4-phenylenecarbonyl] (9CI)
(CA INDEX NAME)

RN 194941-44-1 HCAPLUS

CN Poly[1,3,4-oxadiazole-2,5-diyl[5-(diphenylamino)-1,3-phenylene]-
1,3,4-oxadiazole-2,5-diyl-1,4-phenylene] (9CI) (CA INDEX NAME)



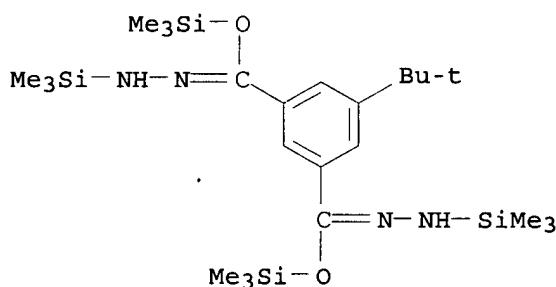
RN 194941-46-3 HCPLUS

CN 1,3-Benzenedicarbohydrazonic acid, 5-(1,1-dimethylethyl)-N,N'-bis(trimethylsilyl)-, bis(trimethylsilyl) ester, polymer with 5-(diphenylamino)-1,3-benzenedicarbonyl dichloride (9CI) (CA INDEX NAME)

CM 1

CRN 176761-95-8

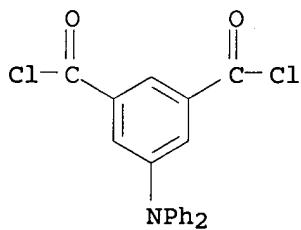
CMF C24 H50 N4 O2 Si4



CM 2

CRN 176761-93-6

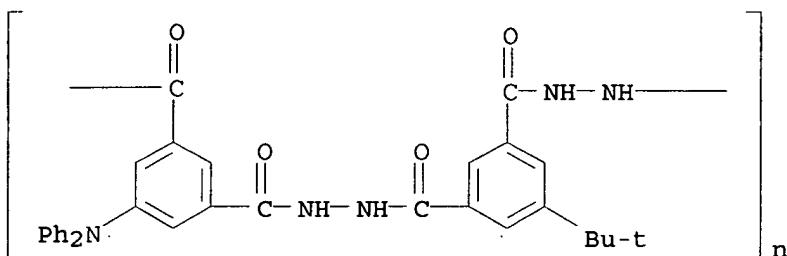
CMF C20 H13 Cl2 N O2



RN 194941-48-5 HCPLUS

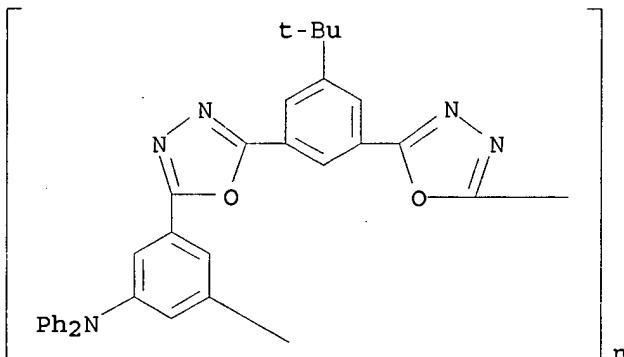
CN Poly [hydrazocarbonyl [5-(1,1-dimethylethyl)-1,3-

phenylene] carbonylhydrazocarbonyl [5-(diphenylamino)-1,3-phenylene] carbonyl] (9CI) (CA INDEX NAME)



RN 194941-52-1 HCPLUS

CN Poly[1,3,4-oxadiazole-2,5-diyl[5-(1,1-dimethylethyl)-1,3-phenylene]-1,3,4-oxadiazole-2,5-diyl[5-(diphenylamino)-1,3-phenylene]] (9CI) (CA INDEX NAME)



CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 73, 76

IT 29695-96-3 32035-01-1 32035-08-8 176762-01-9

180598-92-9 194941-30-5 194941-39-4

194941-44-1 194941-46-3 194941-48-5

194941-50-9 194941-52-1 194941-54-3 194941-56-5

(novel fabrication technique and new conjugated polymers for multilayer polymer light-emitting diodes)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 37 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:217311 HCPLUS

DOCUMENT NUMBER: 126:278150

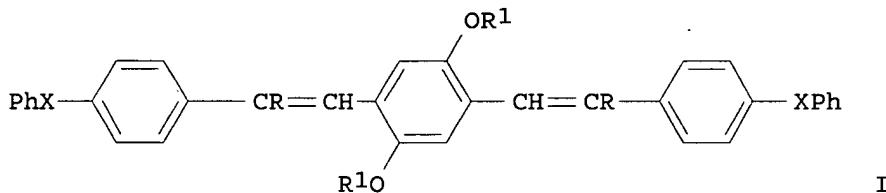
TITLE: Novel light emitting and photoconducting polyarylenevinylene derivatives containing phenylene arylamine and phenylene oxide units in the main chain

AUTHOR(S): Rost, H.; Teuschel, A.; Pfeiffer, S.; Hoerhold, H.-H.

CORPORATE SOURCE: University of Jena, Institute of Organic Chemistry and Macromolecular Chemistry, Humboldtstr. 10, Jena, 07743, Germany

SOURCE: Synthetic Metals (1997), 84(1-3), 269-270
 CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI



AB Four new copolymers with alternating phenylenevinylene and arylenevinylene units were synthesized using the Horner reaction between the appropriate dialdehyde/diketone and a 2,5-dialkoxy-1,4-xylylenebis(di-Et phosphonate). Backbone conjugation in the polymers, which consist of well-defined distyrylbenzene (DSB) blocks, is interrupted by arylamino or ether groups. Thin films of the polymers exhibit both photoluminescence and electroluminescence, emitting blue, green, and green yellow light. The band gap and oxidation potential are strongly dependent on the nature of group joining the DSB units. Thus, model compds. having the structure I, where X = NPh or O, R = H or Ph, and R1 = Me or octyl, reflect well the characteristic fluorescence and redox behavior of the resp. polymers. Due to their low oxidation potential (0.6-0.8V vs. Ag/AgCl) the N-containing polymers are of particular interest as photoconducting and electroluminescent materials.

IT 188744-19-6P 188744-21-0P 188982-24-3P

188982-25-4P
 (preparation and properties of novel light emitting and photoconducting polyarylenevinylene derivs. containing phenylene arylamine and phenylene oxide units in main chain)

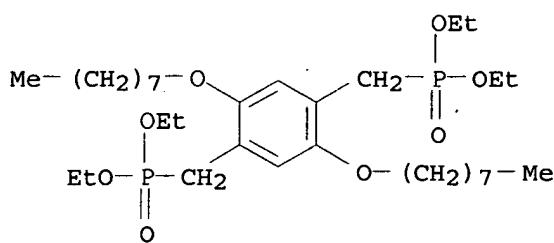
RN 188744-19-6 HCPLUS

CN Phosphonic acid, [[2,5-bis(octyloxy)-1,4-phenylene]bis(methylene)]bis-, tetraethyl ester, polymer with 4,4'-(phenylimino)bis[benzaldehyde] (9CI) (CA INDEX NAME)

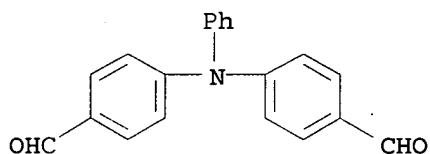
CM 1

CRN 176856-31-8

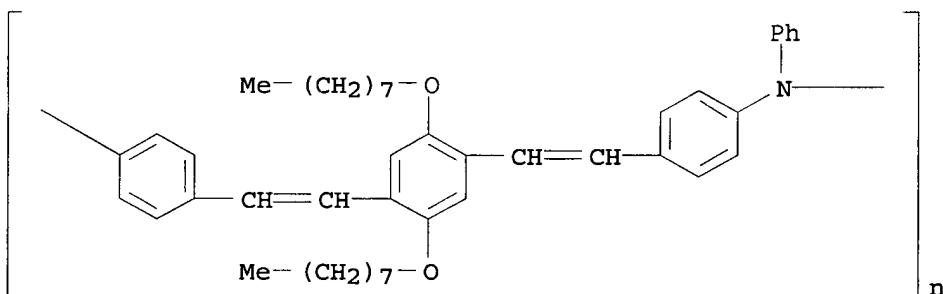
CMF C32 H60 O8 P2



CM 2

CRN 53566-95-3
CMF C20 H15 N O2

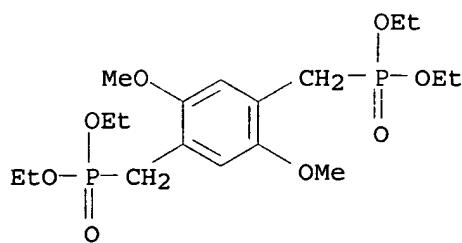
RN 188744-21-0 HCAPLUS
 CN Poly[(phenylimino)-1,4-phenylene-1,2-ethenediyl[2,5-bis(octyloxy)-1,4-phenylene]-1,2-ethenediyl-1,4-phenylene] (9CI) (CA INDEX NAME)



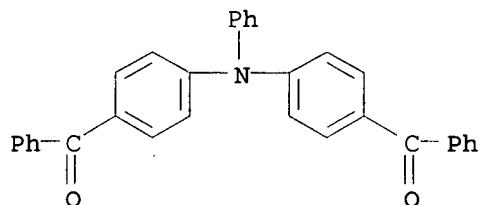
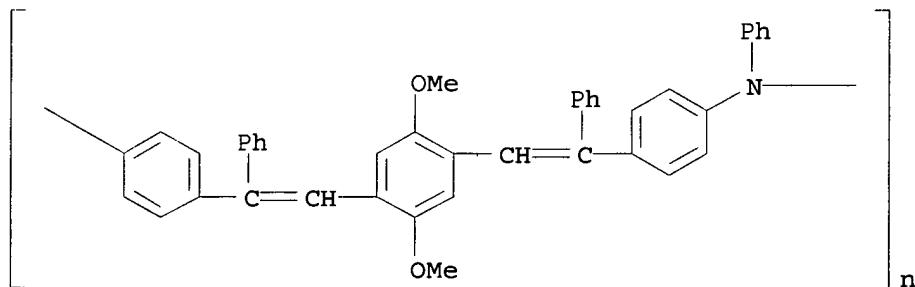
RN 188982-24-3 HCAPLUS
 CN Phosphonic acid, [(2,5-dimethoxy-1,4-phenylene)bis(methylene)]bis-, tetraethyl ester, polymer with [(phenylimino)di-4,1-phenylene]bis[phenylmethanone] (9CI) (CA INDEX NAME)

CM 1

CRN 60491-94-3
CMF C18 H32 O8 P2



CM 2

CRN 16911-34-5
CMF C32 H23 N O2RN 188982-25-4 HCAPLUS
CN Poly[(phenylimino)-1,4-phenylene(1-phenyl-1,2-ethenediyl)(2,5-dimethoxy-1,4-phenylene)(2-phenyl-1,2-ethenediyl)-1,4-phenylene] (9CI) (CA INDEX NAME)CC 37-5 (Plastics Manufacture and Processing)
IT 178985-14-3P 188744-19-6P 188744-21-0P
188982-22-1P 188982-23-2P 188982-24-3P
188982-25-4P 188982-26-5P
(preparation and properties of novel light
emitting and photoconducting polyarylenevinylene
derivs. containing phenylene arylamine and phenylene oxide units in
main chain)L18 ANSWER 38 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1996:136099 HCAPLUS
DOCUMENT NUMBER: 124:178244
TITLE: A New Polymeric Triarylamine and Its Use as a
Charge Transport Layer for Polymeric LEDs

AUTHOR(S) : Kolb, Eric S.; Gaudiana, Russell A.; Mehta, Parag G.

CORPORATE SOURCE: Materials Research Laboratory, Polaroid Corporation, Cambridge, MA, 02139, USA

SOURCE: Macromolecules (1996), 29(7), 2359-64

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new hole-injecting polymer for an electroluminescent element was prepared by radical polymerization of a methacrylate monomer that contains an N'-biphenyl-N,N-diphenylamine unit as a pendent side chain. Cyclic voltammetry of the polymer coated on an ITO electrode shows a chemical irreversible oxidation at 1.2 V. Subsequent cycles reveal that the newly formed species is electrochem. stable. The polymer was used as both an electroluminescent layer and a hole injection layer in single- and double-layered devices, resp. The double-layered device using ITO as the anode, Al as the cathode, and poly[methyl(2-(1-pyrenyl)ethyl)siloxane] as the electroluminescent layer gave bright blue-green light with a maximum brightness level of 168 cd/m² and an internal quantum efficiency of 0.20%.

IT 173865-99-1P
(polymeric triarylamine and for hole injection in charge transport layer for polymeric LEDs)

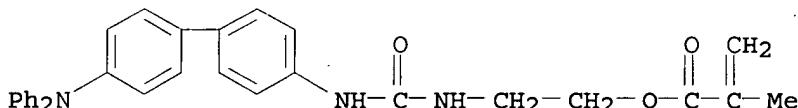
RN 173865-99-1 HCPLUS

CN 2-Propenoic acid, 2-methyl-, 2-[[[[4'-(diphenylamino)[1,1'-biphenyl]-4-yl]amino]carbonyl]amino]ethyl ester, homopolymer (9CI)
(CA INDEX NAME)

CM 1

CRN 173865-98-0

CMF C31 H29 N3 O3



CC 38-3 (Plastics Fabrication and Uses)

IT 9004-73-3DP, Poly(methylhydrosiloxane), reaction product with 1-vinylpyrene 17088-21-0DP, 1-Vinylpyrene, reaction product with Me siloxane 49718-23-2DP, Poly(methylhydrosiloxane), monomer-based, reaction product with 1-vinylpyrene
173865-99-1P

(polymeric triarylamine and for hole injection in charge transport layer for polymeric LEDs)

L18 ANSWER 39 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1996:98983 HCPLUS

DOCUMENT NUMBER: 124:177768

TITLE: Electroluminescent poly(arylene ether) containing both hole-transporting and electron-transporting units

AUTHOR(S) : Kido, Junji; Harada, Gaku; Nagai, Katsutoshi
CORPORATE SOURCE: Dep. Mater. Sci. Eng., Yamagata Univ.,
Yonezawa, 992, Japan

SOURCE: Chemistry Letters (1996), (2), 161-2
 CODEN: CMLTAG; ISSN: 0366-7022

PUBLISHER: Nippon Kagakkai
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB A poly(arylene ether) containing hole-transporting tetraphenylbenzidine units and electron-transporting 1,3,4-oxadiazole units was synthesized and examined as an emitter layer in organic electroluminescent device. The device structure of glass substrate/indium-tin oxide/polymer/Mg:Ag was employed. The EL device exhibited blue green light originating from the polymer emitter layer with a maximum luminance of 26 cd/m² at 12 V.

IT 173965-33-8P 173965-34-9P
 (preparation and characterization of hole- and electron transporting poly(arylene ether) for electroluminescent device)

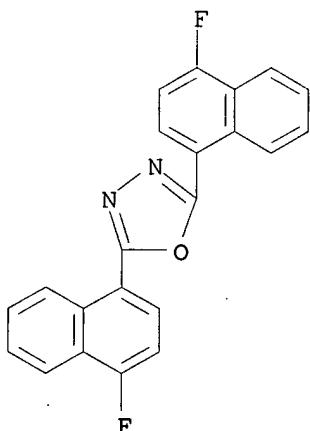
RN 173965-33-8 HCPLUS

CN Phenol, 4,4'-[[1,1'-biphenyl]-4,4'-diylbis(phenylimino)]bis-, polymer with 2,5-bis(4-fluoro-1-naphthalenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 148140-89-0

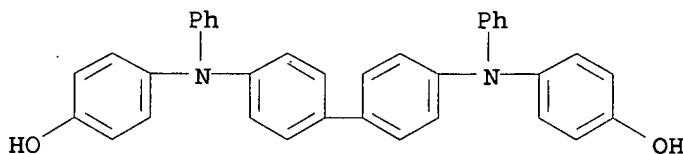
CMF C22 H12 F2 N2 O



CM 2

CRN 121333-95-7

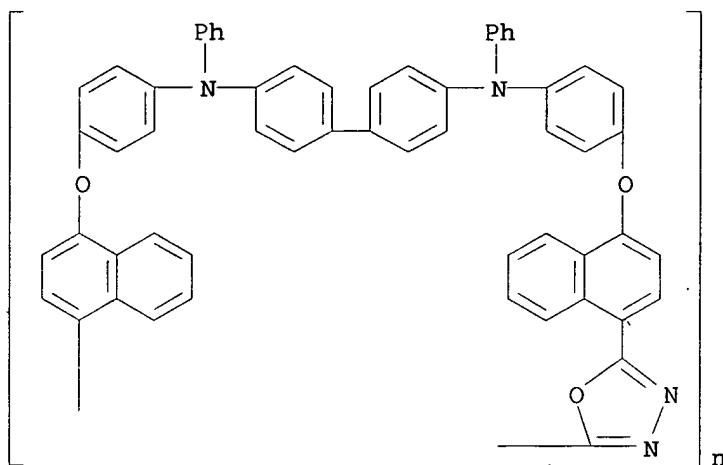
CMF C36 H28 N2 O2



RN 173965-34-9 HCPLUS

CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-naphthalenediyl-oxyl-1,4-

phenylene (phenylimino) [1,1'-biphenyl]-4,4'-diyl (phenylimino)-1,4-phenyleneoxy-1,4-naphthalenediyl] (9CI) (CA INDEX NAME)



CC 37-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 73, 76

IT 173965-33-8P 173965-34-9P
(preparation and characterization of hole- and electron transporting poly(arylene ether) for **electroluminescent** device)

L18 ANSWER 40 OF 41 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1995:688098 HCPLUS

DOCUMENT NUMBER: 123:84910

TITLE: Synthesis of electroluminescent polymer containing charge transport and emissive chromophores on polymer skeleton

AUTHOR(S): Kim, Dong Uk; Tsutsui, Tetsuo; Saito, Shogo

CORPORATE SOURCE: Dep. Mater. Sci. Technol., Kyushu Univ., Kasuga, 816, Japan

SOURCE: Chemistry Letters (1995), (7), 587-8
CODEN: CMLTAG; ISSN: 0366-7022

PUBLISHER: Nippon Kagakkai

DOCUMENT TYPE: Journal

LANGUAGE: English

AB An electroluminescent polymer with a distyrylbenzene unit as an emissive group and a triphenylamine unit as a charge transport group in the polymer backbone was designed and synthesized. A single-layer test device of ITO/electroluminescent polymer/MgAg; the polymer layer was deposited using a spin-coating method. Under bias voltage a greenish blue electroluminescence with an emission maximum at 488 nm. was observed Maximum brightness of 22 cd/m² was observed at a c.d. of 88 mA/cm² under drive voltage of 28 V.

IT 165550-58-3P 165550-60-7P
(preparation and **electroluminescence** and charge transport of poly(distyrylbenzene phenylamine))

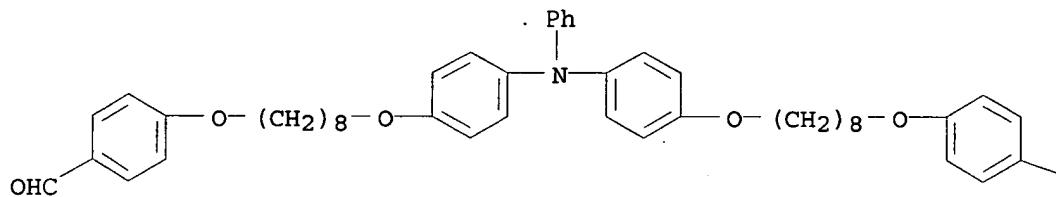
RN 165550-58-3 HCPLUS

CN Phosphonium, [1,4-phenylenebis(methylene)]bis[triphenyl-, dibromide, polymer with 4,4'-[(phenylamino)bis(4,1-phenyleneoxy-8,1-octanediyloxy)]bis[benzaldehyde] (9CI) (CA INDEX NAME)

CM 1

CRN 165550-57-2
 CMF C48 H55 N 06

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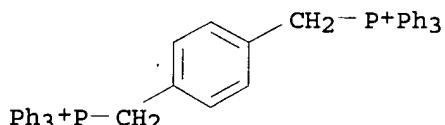


PAGE 1-B

CHO

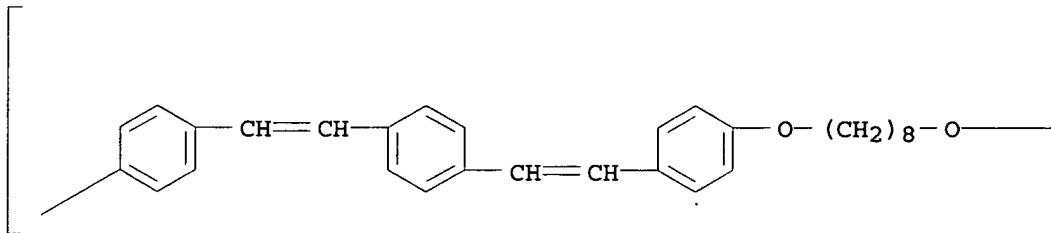
CM 2

CRN 40817-03-6
 CMF C44 H38 P2 . 2 Br

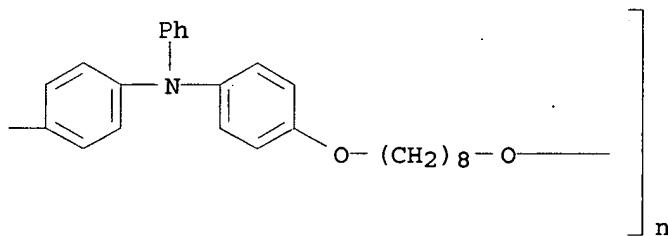
●2 Br⁻

RN 165550-60-7 HCAPLUS
 CN Poly[oxy-1,8-octanediyloxy-1,4-phenylene(phenylimino)-1,4-phenyleneoxy-1,8-octanediyloxy-1,4-phenylene-1,2-ethenediyl-1,4-phenylene-1,2-ethenediyl-1,4-phenylene] (9CI) (CA INDEX NAME)

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CC 37-6 (Plastics Manufacture and Processing)

IT 165550-58-3P 165550-60-7P

(preparation and electroluminescence and charge transport of poly(distyrylbenzene phenylamine))

L18 ANSWER 41 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1995:651010 HCAPLUS

DOCUMENT NUMBER: 123:57954

TITLE: Design and synthesis of processable electroluminescent polymer with charge transport capability

AUTHOR(S): Kim, Dong Uk; Tsutsui, Tetsuo; Saito, Shogo

CORPORATE SOURCE: Dep. Materials Science and Technol., Kyushu Univ., Kasuga, 816, Japan

SOURCE: Polymer (1995), 36(12), 2481-83

CODEN: POLMAG; ISSN: 0032-3861

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A polymer with an electroluminescent chromophore on a skeletal chain was designed and synthesized. Homogeneous thin films (.apprx.100 nm thick) of the polymer were obtained by spin-coating. Two types of electroluminescent diodes were fabricated, with single-layer and double-layer structures: indium tin oxide (ITO)/polymer/MgAg, and ITO/polymer/electron transport layer/MgAg, resp. Bright-green electroluminescence with a peak at 520 nm, which corresponded to the photoluminescence peak of the polymer, was observed in both types of device. The double-layer device was found to have better electroluminescent efficiency than the single-layer device.

IT 164728-27-2

(fabrication and characteristics of polymeric electroluminescent diodes with charge transport capability)

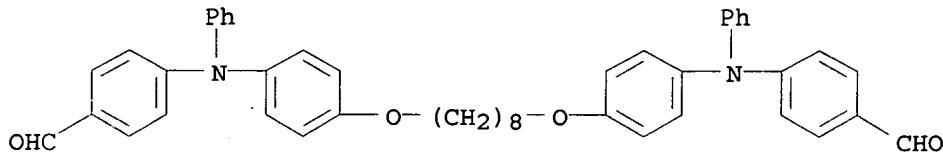
RN 164728-27-2 HCAPLUS

CN Benzaldehyde, 4,4'-[1,8-octanediylibis[oxy-4,1-phenylene(phenylimino)]]]bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 164728-26-1

CMF C46 H44 N2 O4



CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s) : 35, 37, 73

IT 164728-27-2

(fabrication and characteristics of polymeric electroluminescent diodes with charge transport capability)